FURUNO

INMARSAT-C MOBILE EARTH STATION
FELCOM 15
Installation Manual

TABLE OF CONTENTS

EQUIPMENT LISTS ii

SYSTEM CONFIGURATION iii

1. MOUNTING THE UNIT 1
- 1.1 Antenna Unit 1
- 1.2 Terminal Unit 7
- 1.3 Distress Alert/Received Call Unit IC-305/Alarm Unit IC-306 9
- 1.4 Printer PP-510 (option)/EGC Printer PP-505 (option) 10
- 1.5 AC/DC Power Supply Unit PR-240 (option) 10
- 1.6 Junction Box IC-315 11

2. WIRING 12
- 2.1 Antenna Cable Connector at the Terminal Unit 13
- 2.2 Distress Alert/Received Call Unit IC-305 13
- 2.3 Alarm Unit IC-306 16
- 2.4 Junction Box IC-315 17

3. INITIAL SETTING 18
- 3.1 Setting the IMN (INMARSAT MOBILE NO.) 18
- 3.2 Setting for External Equipment 19

4. INSTALLATION OF GPS BOARD (OPTION) 20

5. CHANGING POWER SUPPLY SPECIFICATIONS 23

PACKING LISTS A-1

OUTLINE DRAWINGS D-1

INTERCONNECTION DIAGRAM S-1

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⚠ SAFETY INSTRUCTIONS

⚠ WARNING

Do not open the equipment unless totally familiar with electrical circuits and service manual.

ELECTRICAL SHOCK HAZARD

Only qualified personnel should work inside the equipment.

Do not approach the radome closer than 60 cm when it is transmitting.

Microwave radiation can cause severe injury or illness.
Radiation level:
10 W/m² at 60 cm

Turn off the power at the mains switchboard before beginning the installation. Post a sign near the switch to indicate it should not be turned on while the equipment is being installed.

Fire, electrical shock or serious injury can result if the power is left on or is applied while the eqiuipment is being installed.

⚠ CAUTION

Confirm that the power supply voltage is compatible with the voltage rating of the equipment.

Connection to the wrong power supply can cause fire or equipment damage. The voltage rating appears on the label at the rear of the terminal unit.

Use the correct fuse.

Use 10 A fuse (defalt setting) for 12 VDC power supply, or replace the fuse to 5 A (supplied as spare parts) with 24 VDC.

Use of wrong fuse can result in damage to the equipment.

Keep the following compass safe distances.

	Standard	Steering
Antenna Unit IC-115	0.30 m	0.30 m
Terminal Unit IC-215	0.70 m	0.40 m
Printer PP-510	1.00 m	0.80 m
Junction Box IC-315	1.00 m	0.70 m
Distress Alert/ Received Call Unit IC-305	0.50 m	0.30 m
Alarm Unit IC-306	0.50 m	0.30 m
EGC Printer PP-505	2.05 m	1.40 m
AC/DC Power Supply Unit PR-240	0.90 m	0.60 m
Mini keyboard	0.30 m	0.30 m

Attach securely protection earth to the ship's body.

The protection earth is required to the power supply to prevent electrical shock.

EQUIPMENT LISTS

Standard Supply

Name	Type	Code No.	Qty	Remarks
Antenna Unit	IC-115	-	1	
Terminal Unit	IC-215	-	1	
Distress Alert/ Received Call Unit	IC-305	-	1	
Alarm Unit	IC-306	-	1	
Junction Box	IC-315	-	1	w/CP16-02501*
Installation Materials	CP16-02101	004-439-060	1 set	For 30 m cable, antenna unit*
	CP16-02111	004-439-070		For 50 m cable, antenna unit*
	CP16-02121	004-439-080		For 100 m cable, antenna unit*
	CP16-02300	000-043-433	1 set	CP16-02301 (for IC-215)*, CP16-02302 (for keyboard)*
	CP16-02201	004-438-890	1 set	For IC-305/306
	TP5FBAW-5DFBB	000-159-523-11	1	30 m antenna cable
	8D-FB-CV	000-117-599		50 m antenna cable
	12D-SFA-CV	000-138-866		100 m antenna cable
Accessories	FP16-00600	000-043-434	1 set	Mini keyboard (G84-4100PPAUS), FD (FP16-00601)
Spare Parts	SP16-01301	004-439-370	1 set	Fuse*

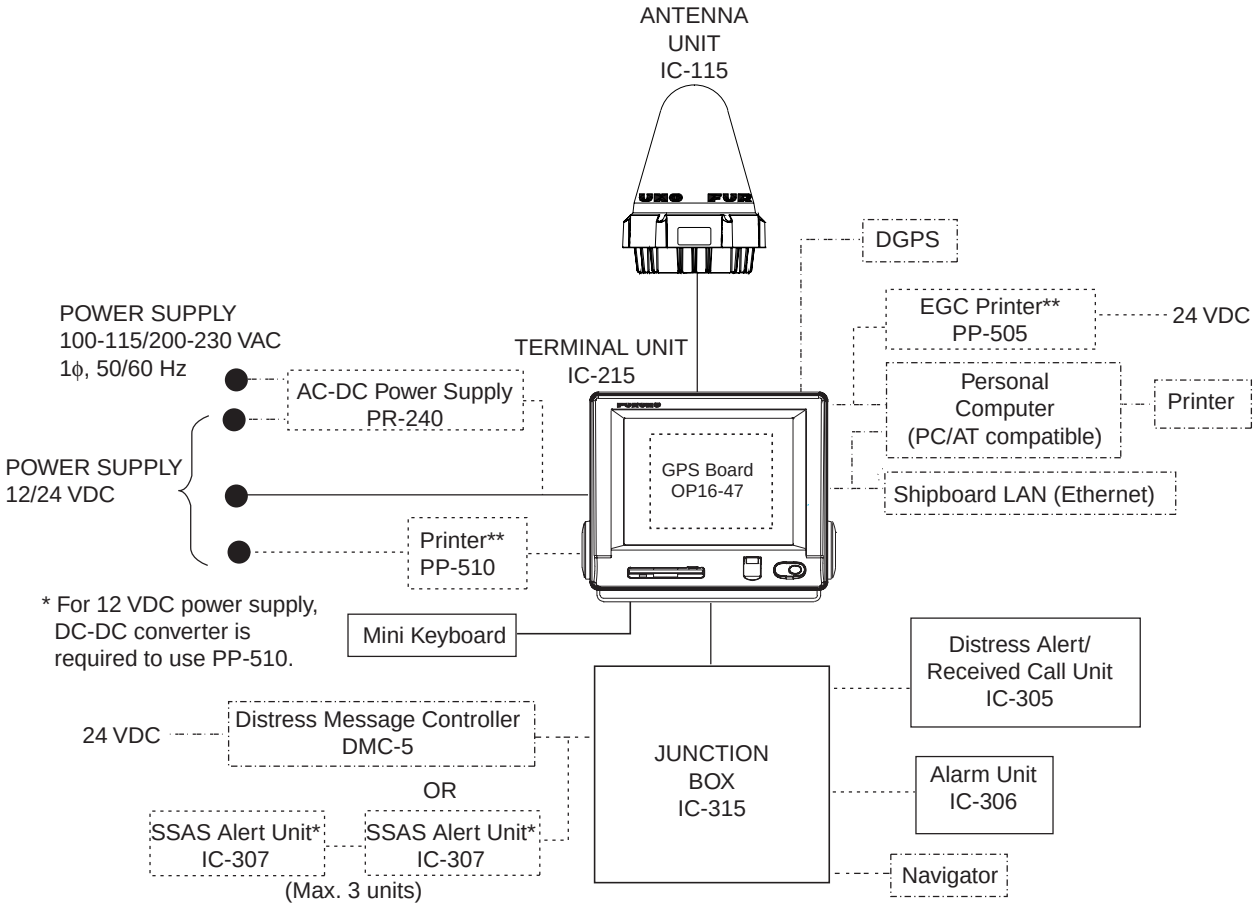
Optional Supply

Name	Type	Code No.	Qty	Remarks
FD-ROM	16-5-0164	004-438-920	1 set	
GPS Board	OP16-47	001-017-110	1 set	
GPS Board Kit	OP16-48	000-011-766	1 set	
RF Cover (GPS)	OP16-49	000-011-767	1	
EGC Printer	PP-505	-	1	
Printer	PP-510	-	1	w/CP16-01200*
AC/DC Power Supply Unit	PR-240	-	1	w/CP24-00151*
5-pair cable	CO-SPEVV-SB-C 0.2x5P	000-560-452	1	For junction box, 10m
		000-103-868		For junction box, 20m
		000-103-869		For junction box, 30m
		000-132-829		For junction box, 40m
		000-132-828		For junction box, 50m
SSAS Modification Kit**	OP16-33	000-043-492	1	IC-307 (2units), FD-ROM (for RFCON CPU, for TERM CPU)
SSAS Alert Unit**	IC-307	000-043-473	1	w/CP16-03101, FP16-00901
Flush Mounting Kit	OP16-27	004-448-000	1	For distress alert/received call unit, alarm unit
	OP16-28	004-448-010	1	For SSAS alert unit
ALC (FFA) Modification Kit*	OP16-26	004-439-840	1	
Russian Language Kit	OP16-43	004-449-590	1	For IC-215
PC Terminal Software	OP16-45	004-449-600	1	Russian Language
Antenna Mounting Kit	CP16-03701	004-555-000	1 set	
Antenna Bracket	CP16-03702	001-016-260	1	See page D-14.
Antenna Mounting Pipe	CP16-03703	001-014-510	1	

*: See packing lists at the back of this manual.

**: The SSAS modification kit is required for the SSAS. For installation of three IC-307s, additional SSAS alert unit is necessary.

SYSTEM CONFIGURATION



*: At least two SSAS Alert Units are required.

**: Mandatory for EGC operation as required by IMO RES. A.664(16).

——— : Standard Supply

------- : Option

-·-·-· : Local Supply

CATEGORY OF UNITS

Unit	Category
Terminal Unit	Protected from weather
Antenna Unit	Exposed to weather
Other Units	Protected from weather

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1. MOUNTING THE UNIT

NOTICE

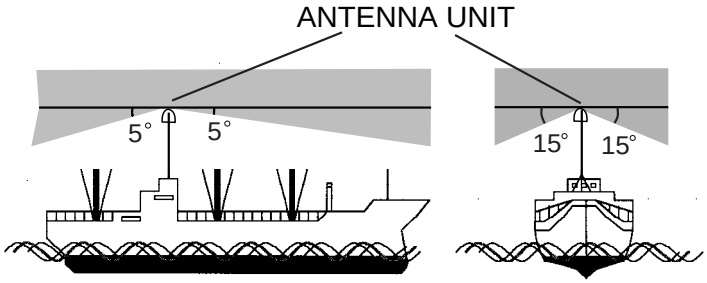
Do not apply paint, anti-corrosive sealant or contact spray to coating or plastic parts of the equipment.

Those items contain organic solvents that can damage coating and plastic parts, especially plastic connectors.

1.1 Antenna Unit

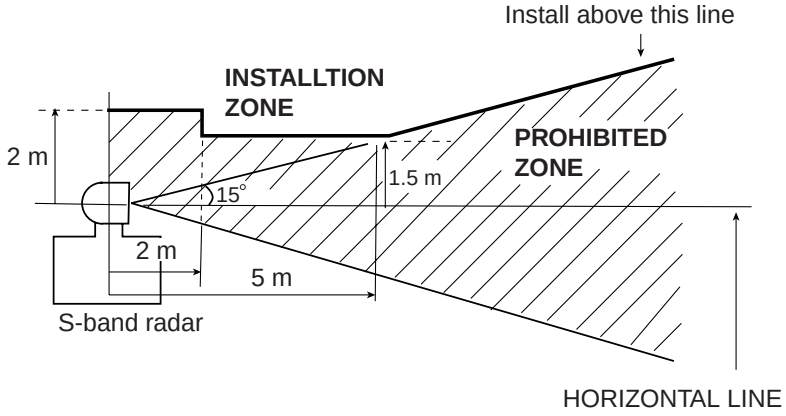
Mounting Location

- Mount the omnidirectional antenna unit high atop a mast clear of stays and the turning diameter of a radar antenna. The ideal mounting location would be where no obstacle appears in the fore and aft directions down to -5º and down to -15º in the port and starboard directions. This concept is illustrated in the figure below. Shadow sector of the antenna mast, whip antenna, etc. should be within 2 degrees at one meter from the antenna unit.



Antenna unit mounting location

- If both Inmarsat-B/F and Inmarsat-C ship earth stations are installed, separate the Inmarsat-B/F antenna at least 8 m from the Inmarsat-C antenna.
- Separate the antenna unit from an S-band radar as follows:



S-band radar and installation area

- The allowable vibration level as specified by Inmarsat is as shown in the table below.

Allowable vibration level

Frequency	Level
2 to 10 Hz	2.54 mm Peak Amplitude
10 to 100 Hz	9.8 m/s² Peak Acceleration

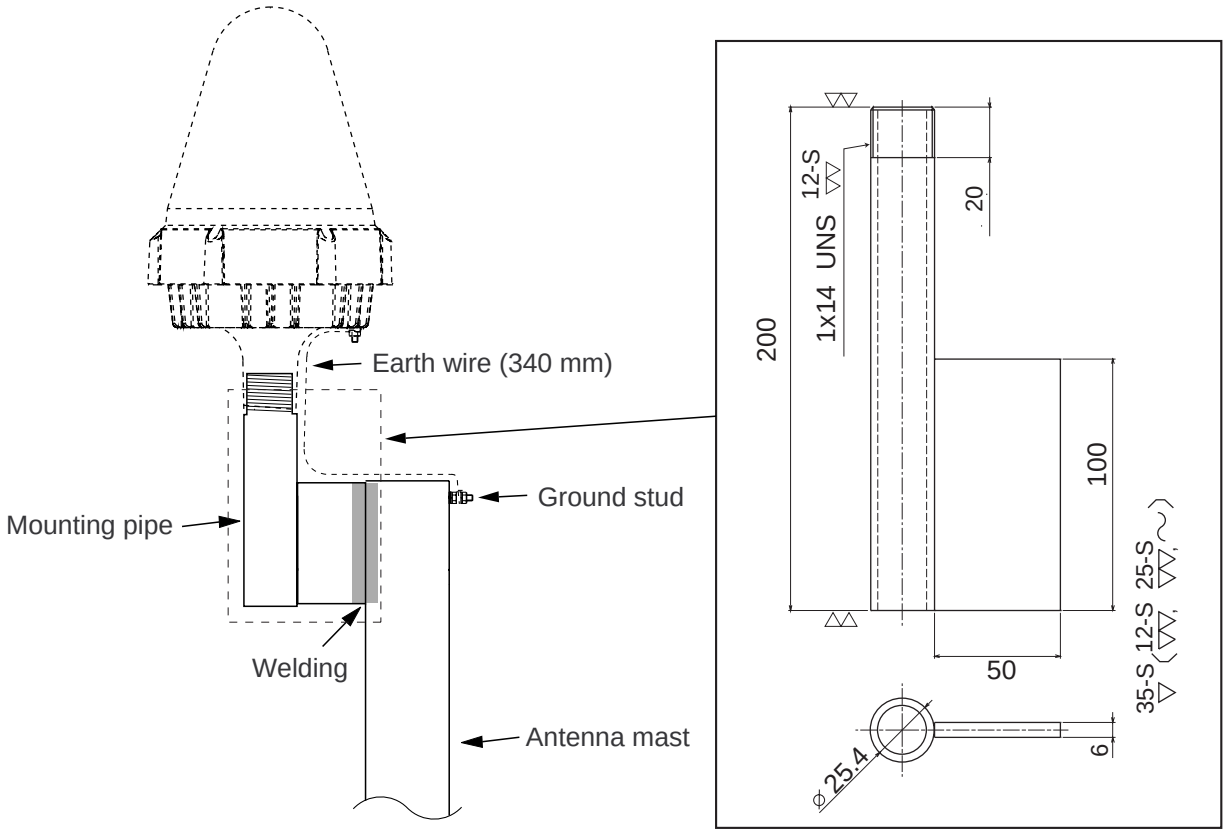
- Avoid the location near funnels and stacks; smoke and soot on the radome can lower signal level.
- Separate the antenna unit 5 m from HF, VHF or 27 MHz antenna.

Mounting

Thirty, 50 or 100 m antenna cable is available. Thirty meters cable has connectors on both sides, and one connector for 50/100 m cable. **Do not shorten these cables to prevent interference.** To mount the antenna unit, an exclusive pipe is necessary.

Note: To mount the antenna unit with the optional antenna mounting kit (Type: CP16-03701, Code No.: 004-555-000), see page D-13.

Locally prepare an antenna mast with a ground stud (M6 stainless steel bolt welded to antenna mast) and mounting pipe with threads and plate (See the outline drawing of the mounting plate shown below.) Weld the mounting pipe to the antenna mast.
The distance between the stud and the earth terminal on the antenna unit should be within 340 mm, which also is the length of the supplied earth wire.

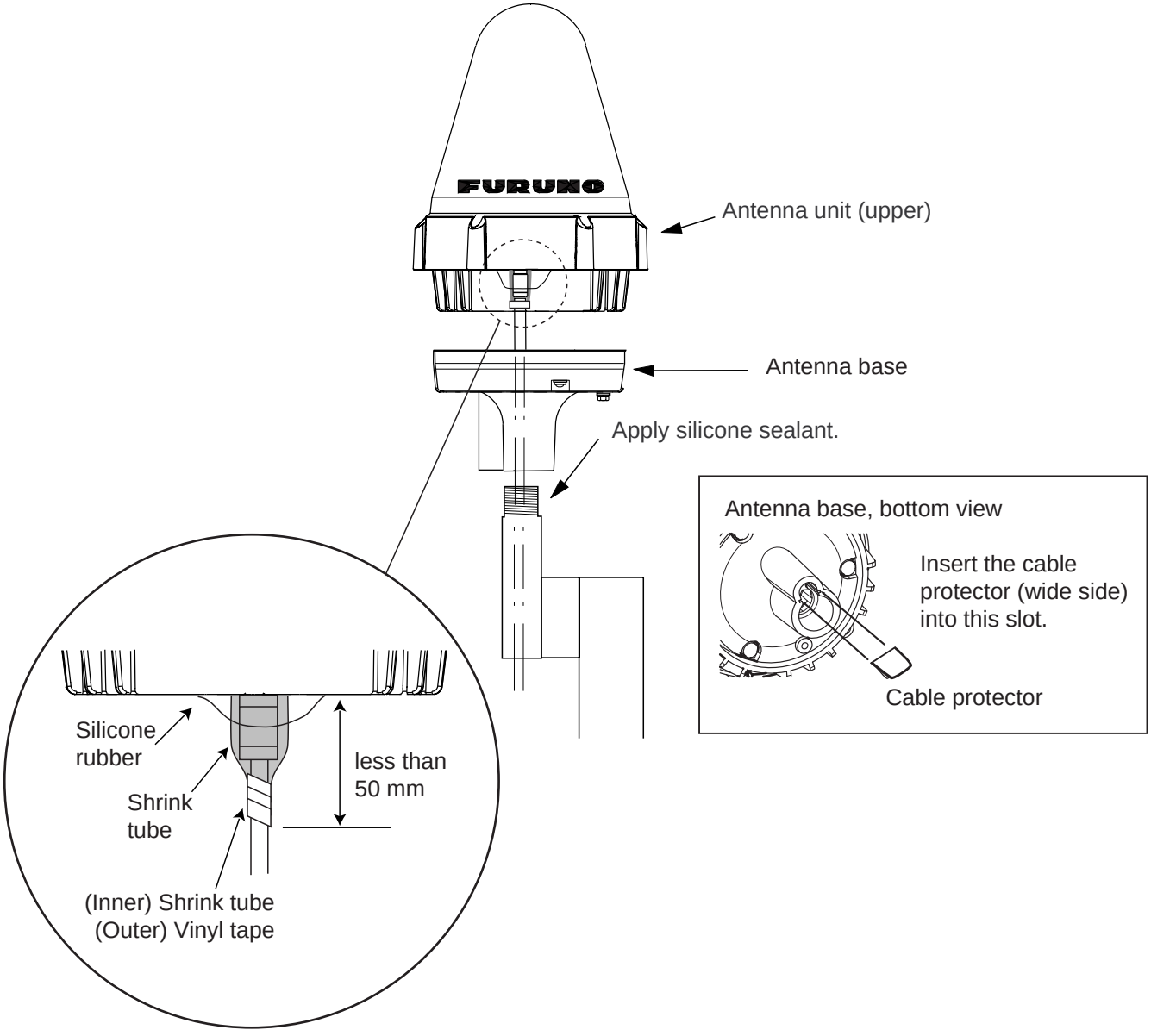


Mounting pipe and antenna mast

For 15 or 30 m cable

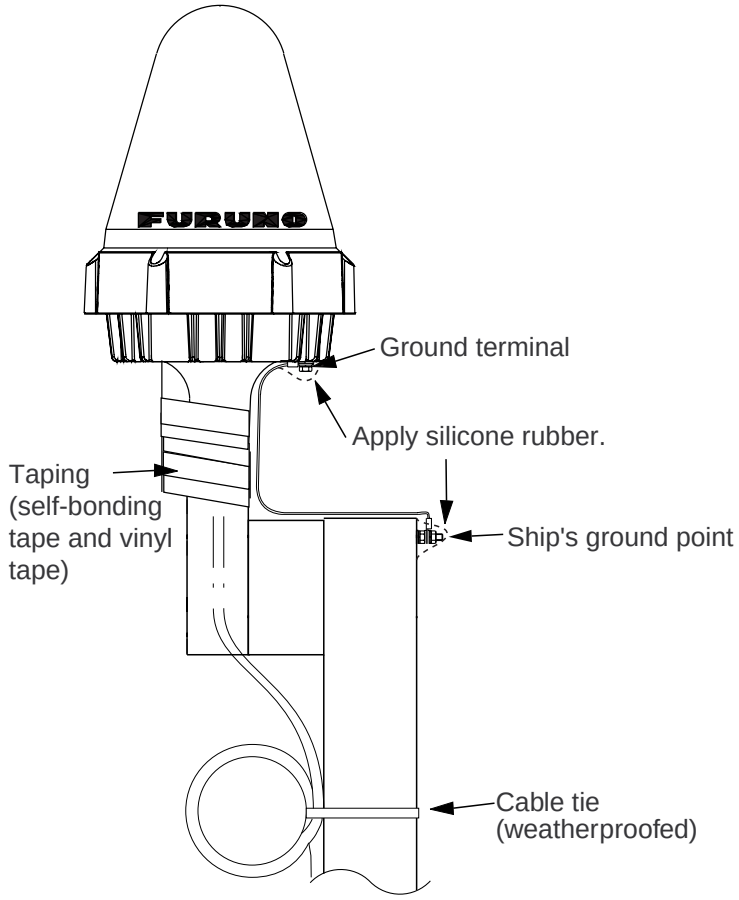
1. Apply silicone sealant (local supply) to the threads of the pipe.
2. Unscrew three screws to remove the antenna base from the antenna unit.
3. Pass the antenna cable through the pipe, antenna base in order.
4. Insert the cable protector (supplied) into the slot at the bottom of antenna base.
5. Screw the antenna base onto the antenna pipe by rotating the antenna base.
6. Pass the antenna cable into the shrink tube (SCM2, supplied).
7. Attach the antenna cable to the connector at the bottom of the antenna unit (upper).
8. Shift the shrink tube until it touches the bottom of the antenna unit (upper).
9. Heat the above shrink tube, and then apply silicone rubber around the upper edge of the tube. Also wind self-bonding tape around the lower edge of the shrink tube and then wrap vinyl tape over self-bonding tape.

Note: Between the bottom of the antenna unit (upper) and the end of the taping should be less than 50 mm.



Antenna unit, passing the cable through the pipe

10. Remount the antenna unit (upper) on the antenna base. (Torque: 2.6 N·m ± 10%)
11. Wrap self-bonding tape around the connection of antenna base and pipe, and then wind vinyl tape over self-bonding tape. These tapes should be winded closely.
12. Fix the earth wire RW-4747 (supplied) between the ground terminal on the antenna unit and the ship's ground point.



Mounting

13. Apply silicone rubber (supplied) to the earth terminal and three screws at the bottom of antenna base.
14. Fix the antenna cable to the mast with a cable tie (local supply).

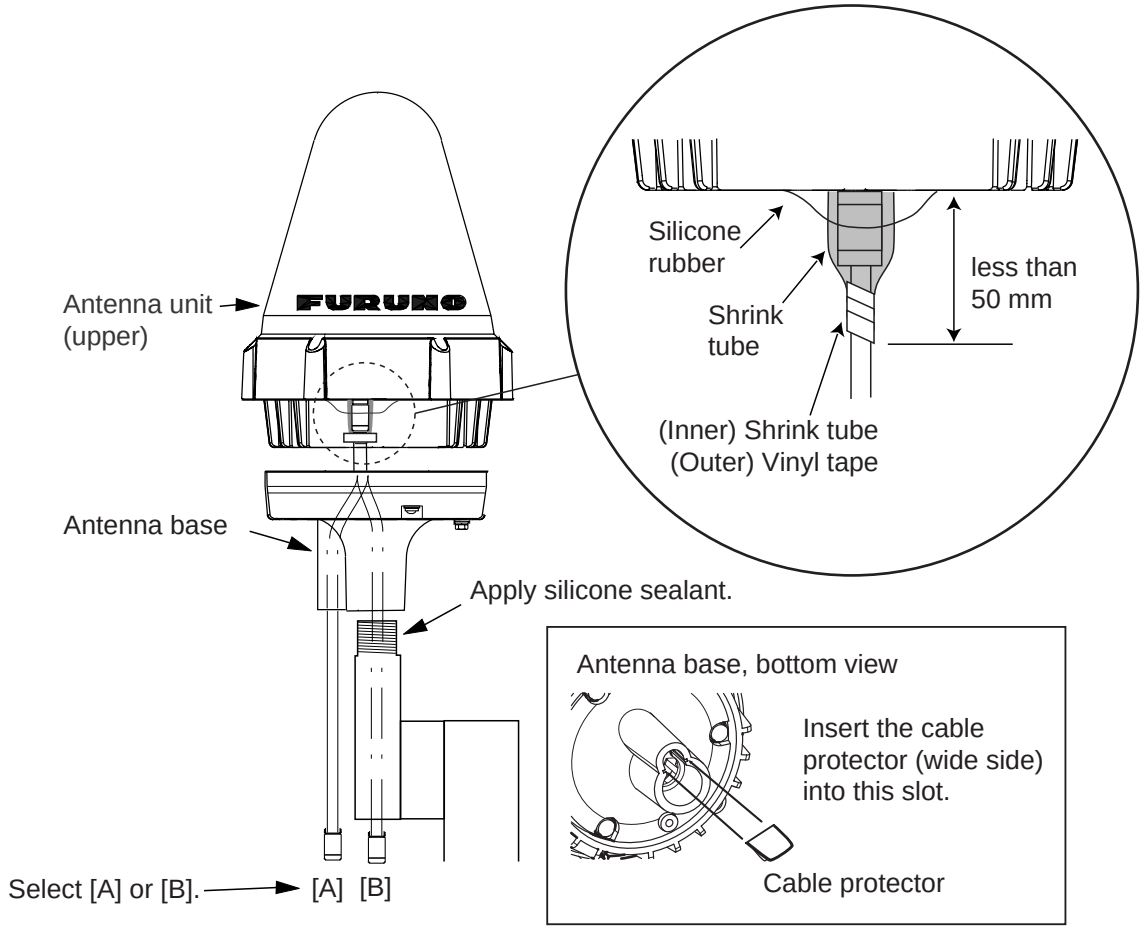
For 50 or 100 m cable

1. Apply silicone sealant (local supply) to the threads of the pipe.
2. Unscrew three screws to remove the antenna base from the antenna unit.
3. Pass the cable assy TPA5FB0.3NJ5FBA-5DFB (supplied, 300 mm) into the shrink tube (SCM2, supplied).
4. Attach the above cable assy to the connector at the bottom of the antenna unit (upper).
5. Shift up the shrink tube until it touches the bottom of the antenna unit (upper).
6. Heat the shrink tube, and then apply silicone rubber to the upper edge of the tube, also wind self-bonding tape around the lower edge of the shrink tube and then wrap vinyl tape over self-bonding tape.

Note: Between the bottom of the antenna unit (upper) and the end of the taping should be less than 50 mm.

7. Insert the cable protector (supplied) in to the slot at the bottom of the antenna base.
8. Pass the antenna cable through the pipe and antenna base in order.

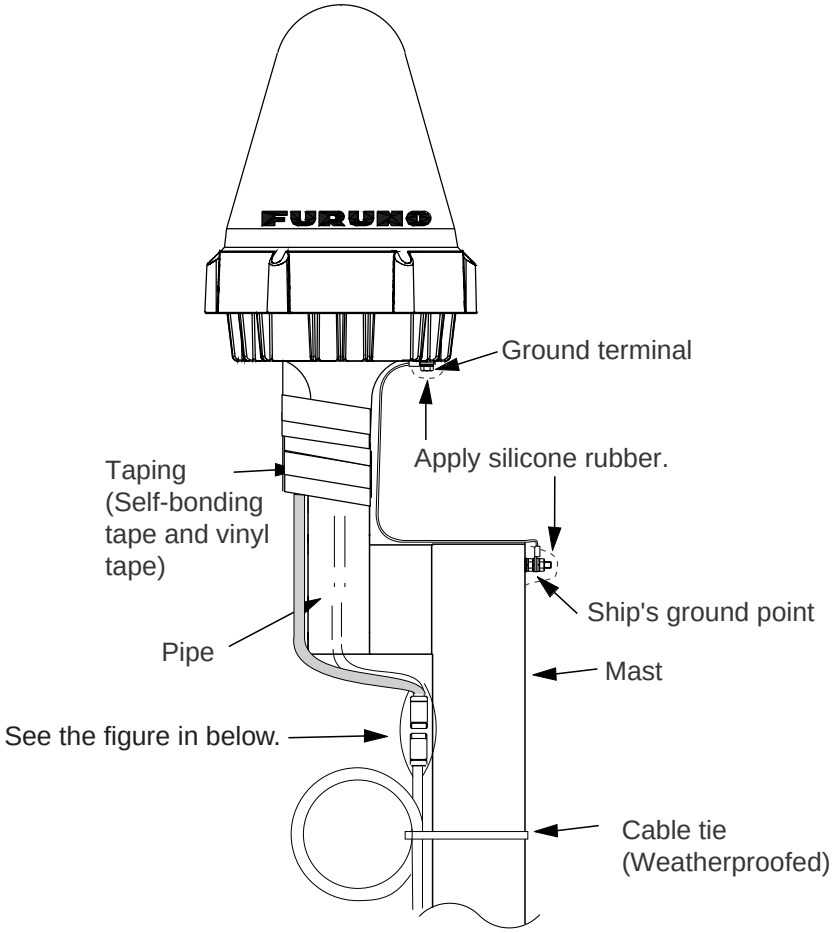
When laying the cable along side the pipe, put the cable aside to pass through the projection in the antenna base. See [A] in the figure shown below.



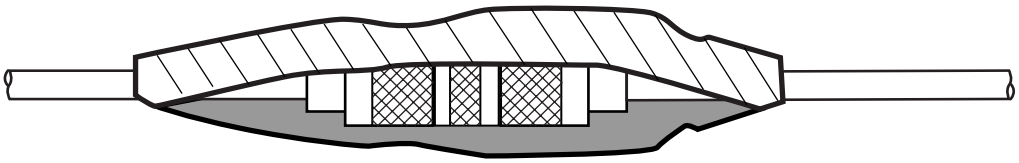
Waterproofing

9. Remount the antenna unit (upper) on the antenna base. (Torque: 2.6 N·m ± 10%)
10. Screw the antenna unit onto the antenna pipe by rotating the antenna unit.
11. Wind self-bonding tape (supplied) at the connection of antenna base and pipe, and then wrap vinyl tape over self-bonding tape.
12. Fix the ground wire RW-4747 (supplied) between the ground terminal on the antenna unit and the ground stud on the mast.

13. Connect the antenna cable (50 or 100 m) and cable assy (attached at step 5).
14. Wrap the connector with self-bonding tape and then vinyl tape. Bind the cable end with a cable tie (local supply).
15. Fix the cable to the mast with cable tie (local supply).



Mounting



Waterproofing

1.2 Terminal Unit

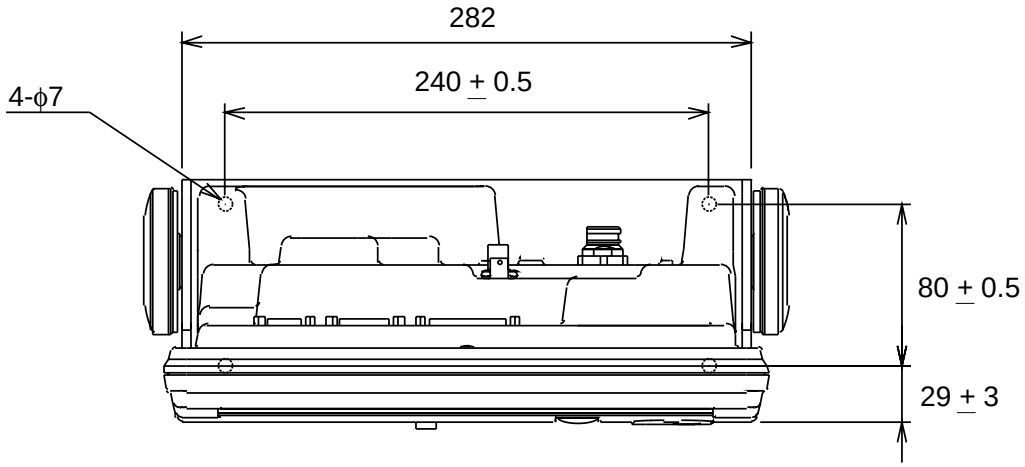
Select the following place to install the terminal unit.

- The temperature and humidity should be moderate and stable.
- For maintenance and checking purposes, leave sufficient space at the sides and rear of the unit and leave slack in cables.

Mounting

Tabletop mounting

1. Fix the hanger on a table with four tapping screws (5x20, supplied).

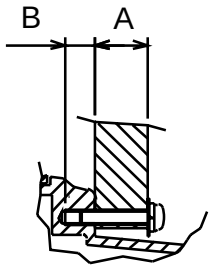


Terminal unit, tabletop mounting

2. Screw knobs and washers to terminal unit loosely.
3. Set the terminal unit to the hanger and tighten knobs.

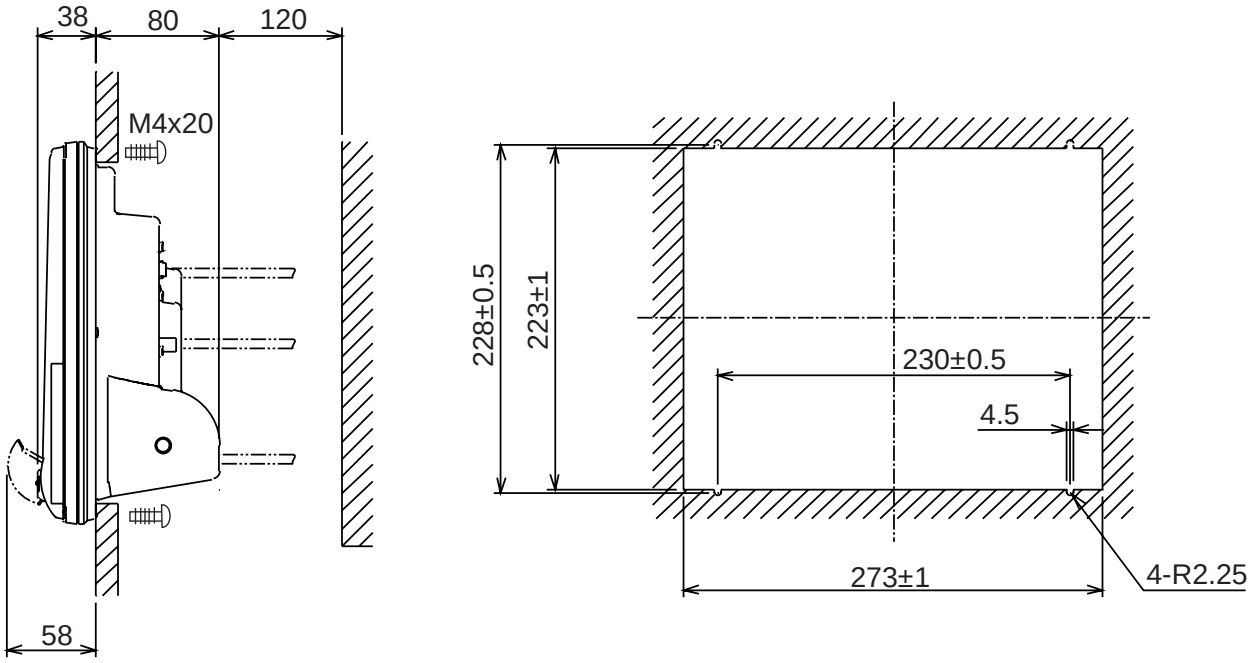
Flush mounting

Use local supplied pan head screws (M4x20) when the thickness of the bulkhead is from 11 to 14 mm. For bulkhead which exceeds 14 mm in thickness the length of the pan head screws should be bulkhead thickness A +7.8±2 mm. Also the length of B should be max. 8 mm (B≤8 mm).



Bulkhead, sectional view

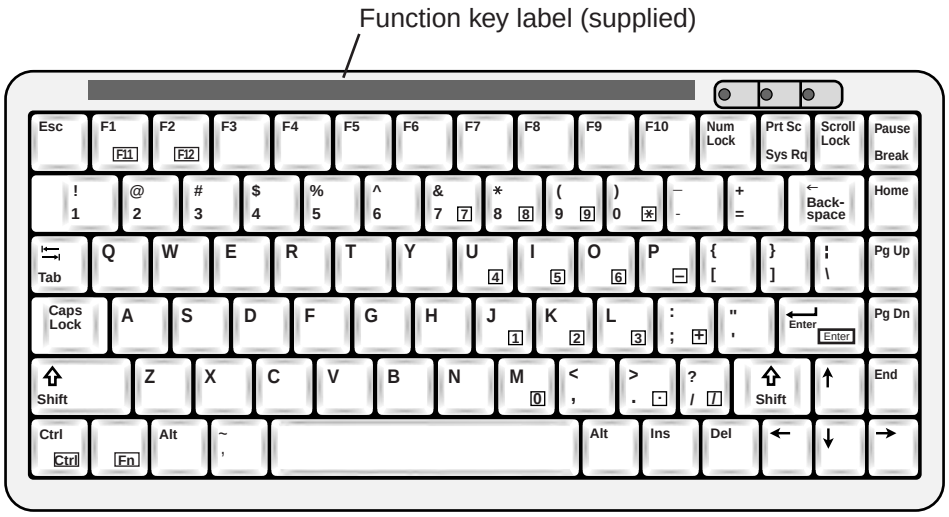
1. Prepare a cutout in the mounting location whose dimensions are as shown on next page.
2. Fix the display unit by six pan head screws M4x20, inserting from the inside of the bulkhead. Refer to the outline drawing at the end of this manual.



Dimensions for flush mounting

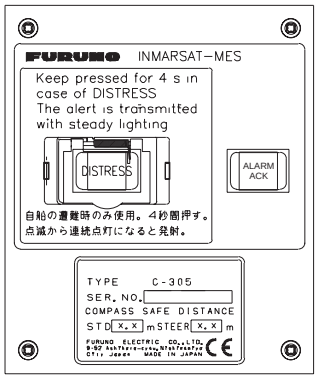
Keyboard

1. Attach the function key label ($^{\text{INM-C}}_{12}^{15}$) to the location shown below.

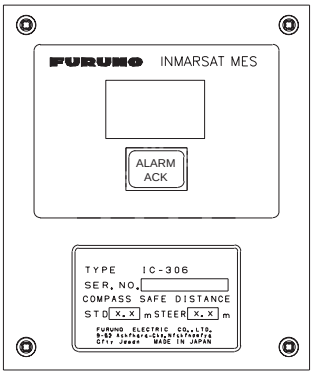


2. Attach four fasteners (small, supplied) to the bottom of the keyboard.
3. Attach four fasteners (large, supplied) to the small fasteners attached in step 3.
4. Peel the paper from four fasteners.
5. Fix the keyboard to the mounting place.

1.3 Distress Alert/Received Call Unit IC-305/ Alarm Unit IC-306



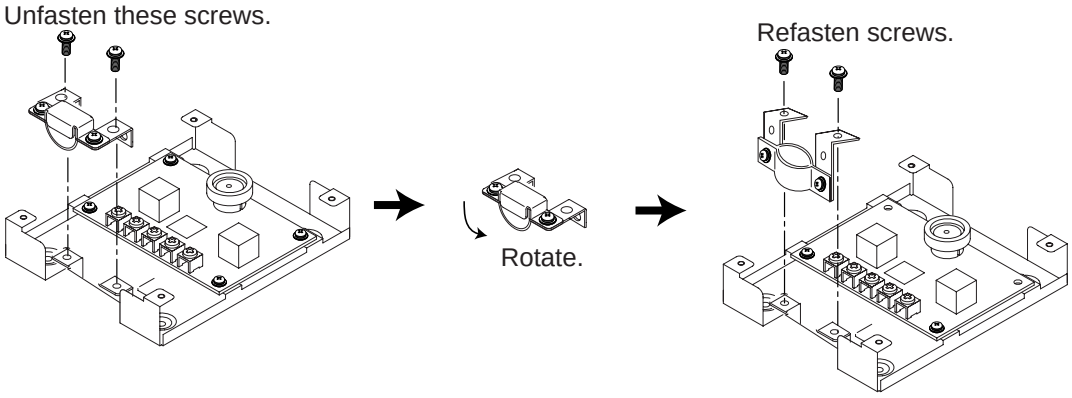
Distress alert/received call unit IC-305



Alarm unit IC-306

Bulkhead mounting

1. Remove four screws from the unit to separate the bottom chassis from the top cover.
2. Fix the bottom chassis to the mounting location with four tapping screws (supplied).
3. Cable can be entered from bottom or rear panel. Select suitable entrance. For rear panel entrance, change the clamp orientation as follows.
   a) Unfasten two screws to remove the cable clamp.
   b) Turn the clamp 90 degrees.
   c) Refasten two screws removed at step a) to fix the clamp.



Cable clamp, rotating

4. Run the interconnection cable thru a cable entrance and connect it to terminal board.

Flush mounting

The optional flush mounting kit OP16-27 (Code No. 004-448-000) is required.

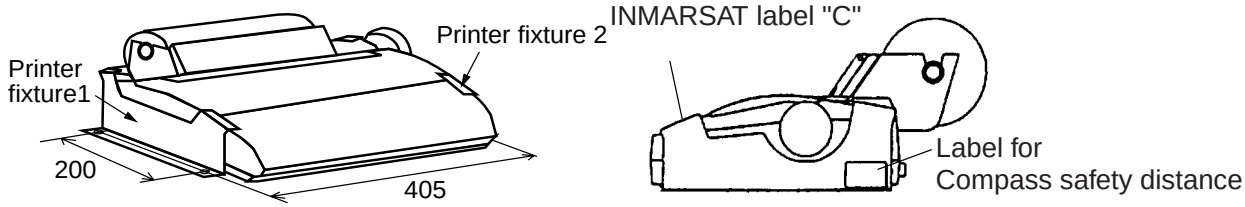
Name	Type	Code No.	Qty	Remarks
Fixture	16-018-4201-1	100-317-841	1	
Pan head screw	M3x6	000-800-362	4	
Self-tapping screw	4x16	000-162-605-10	4	

1. Cut out the mounting position referring to the outline drawings at the back of this manual.
2. Fix the unit to the fixture with four pan head screws (supplied as the option kit).
3. Fasten four tapping screws (ø5, supplied as the option kit) to mount the fixture to the mounting position.

1.4 Printer PP-510 (option)/ EGC Printer PP-505 (option)

PP-510 (option)

Lay the printer on a table and fix it with printer fixtures 1 and 2.
Attach labels appropriately; right side of printer for the compass safety distance label and front of printer for INMAR C label.



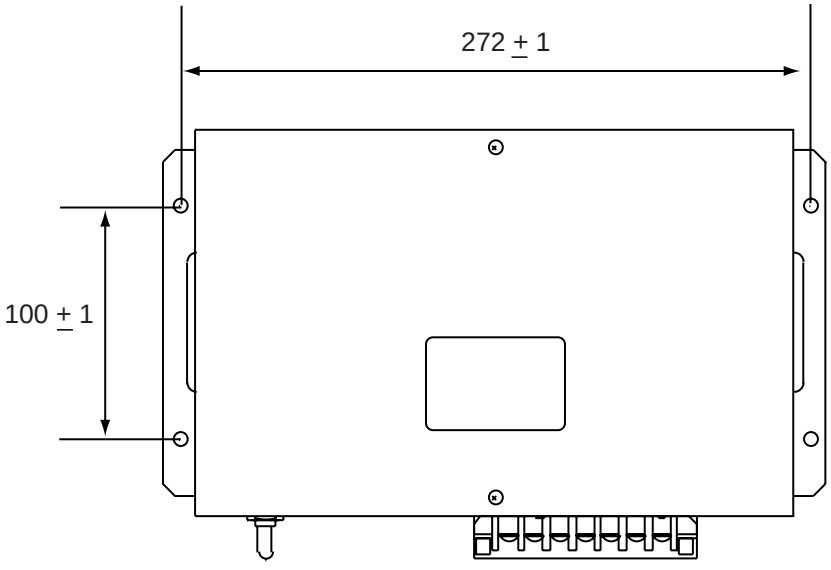
Printer PP-510

PP-505 (option)

1. Fix the hanger on a table with four tapping screws.
2. Screw knobs into printer.
3. Set printer to hanger and tighten knobs.

1.5 AC/DC Power Supply Unit PR-240 (option)

Fix the unit on a table with four tapping screws.

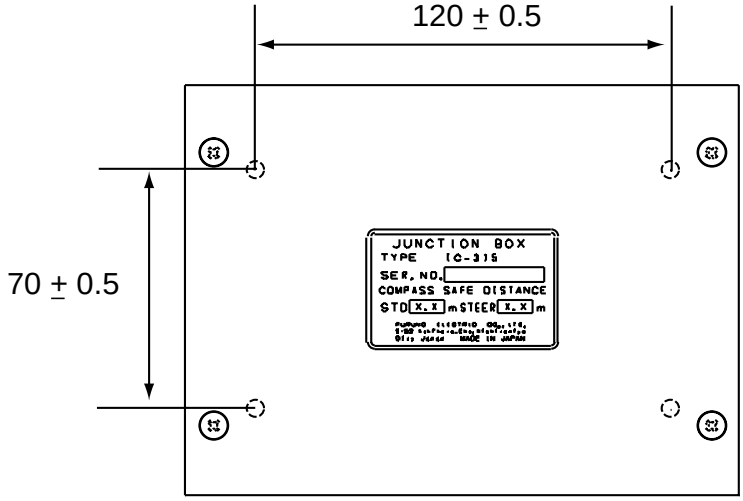


AC/DC power supply unit, dimensions

1.6 Junction Box IC-315

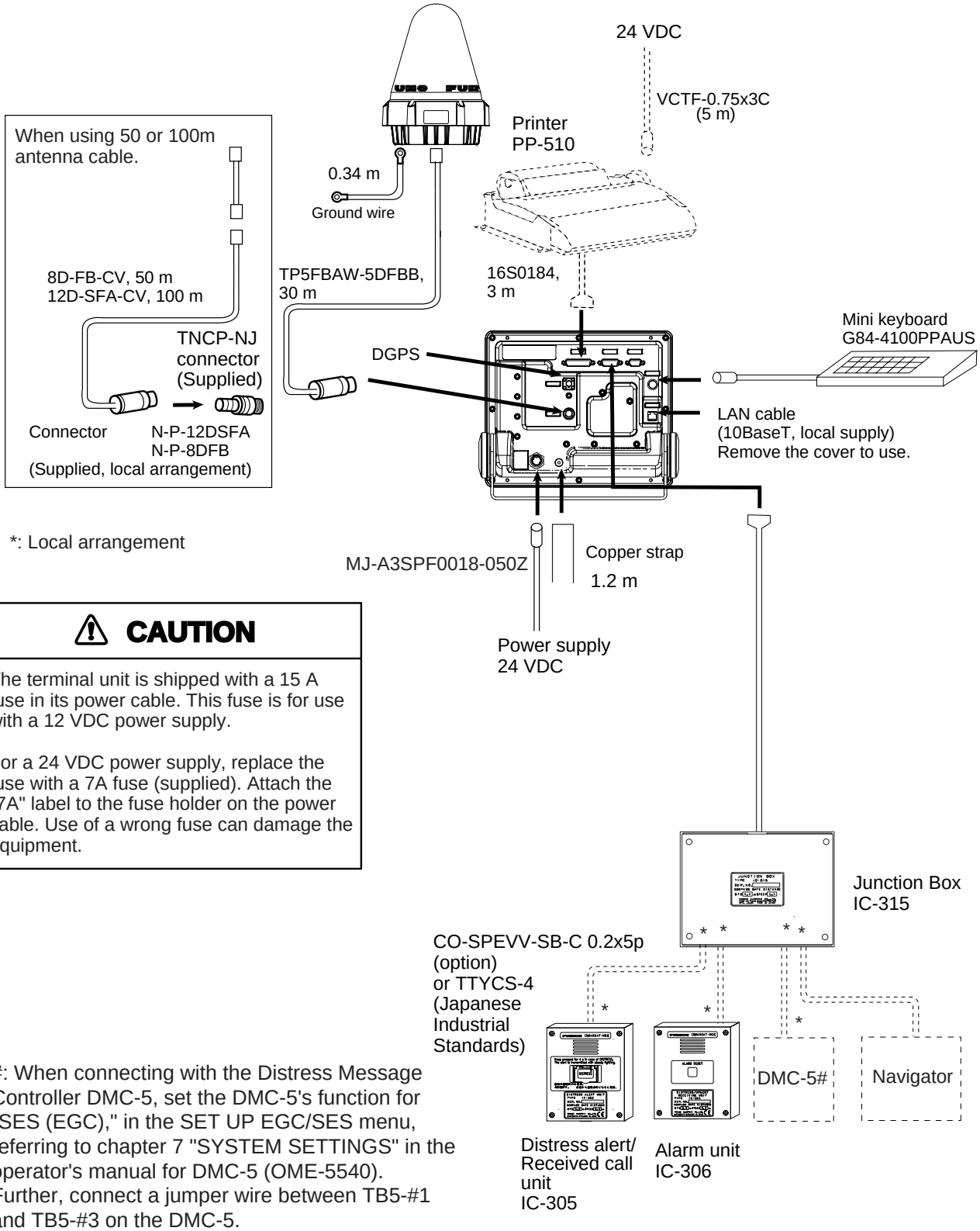
The junction box IC-315 is connected to the terminal unit by using the cable assy 16S0344 (2 m, attached to the junction box). Install the junction box within 2 m from the terminal unit.

1. Remove four screws from the unit to separate the bottom chassis from the top chassis.
2. Fix the bottom chassis to the mounting location with four tapping screws (4x16: supplied).
3. Connect the cables appropriately referring to Chapter 2.



Junction box IC-315, dimensions

2. WIRING



⚠ CAUTION

The terminal unit is shipped with a 15 A fuse in its power cable. This fuse is for use with a 12 VDC power supply.

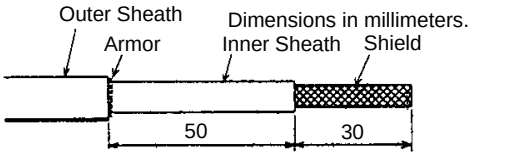
For a 24 VDC power supply, replace the fuse with a 7A fuse (supplied). Attach the "7A" label to the fuse holder on the power cable. Use of a wrong fuse can damage the equipment.

#: When connecting with the Distress Message Controller DMC-5, set the DMC-5's function for "SES (EGC)," in the SET UP EGC/SES menu, referring to chapter 7 "SYSTEM SETTINGS" in the operator's manual for DMC-5 (OME-5540). Further, connect a jumper wire between TB5-#1 and TB5-#3 on the DMC-5.

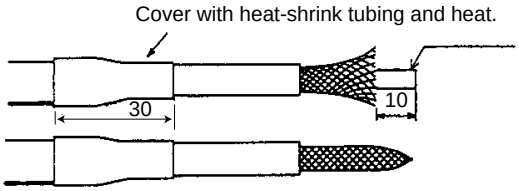
Wiring of FELCOM 15

2.1 Antenna Cable Connector at the Terminal Unit

8D-FB-CV (50 m)

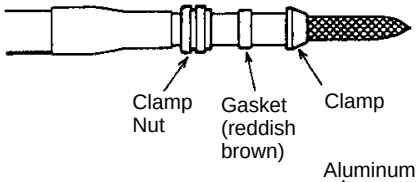


Remove outer sheath and armor by the dimensions shown left.
Expose inner sheath and shield by the dimensions shown left.

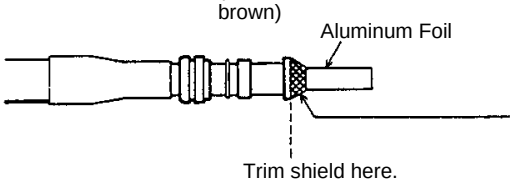


Remove insulator and core by 10 mm.

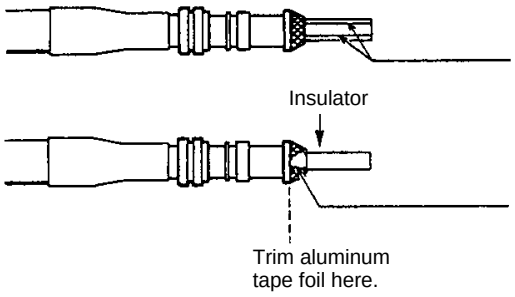
Twist shield end.



Slip on clamp nut, gasket and clamp as shown left.



Fold back shield over clamp and trim.

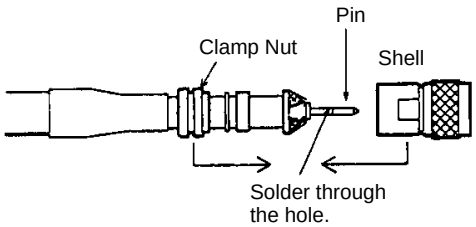


Cut aluminum foil at four places, 90° from one another.

Fold back aluminum tape foil onto shield and trim.

Expose the insulator by 1 mm.

Expose the insulator by 5 mm.

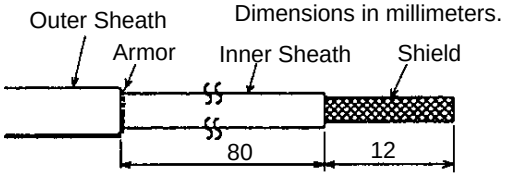


Slip the pin onto the conductor. Solder them together through the hole on the pin.

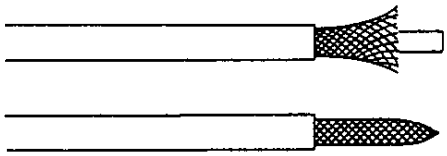
Insert the pin into the shell. Screw the clamp nut into the shell.
(Tighten by turning the clamp nut. Do not tighten by turning the shell.)

How to fabricate antenna cable 8D-FB-CV (50 m)

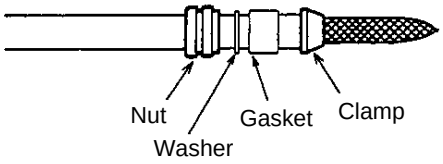
12D-SFA-CV (100 m)



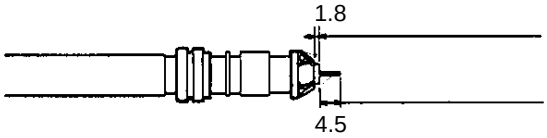
Remove outer sheath and armor by the dimensions shown left.
Expose inner sheath and shield by the dimensions shown left.



Twist shield end.

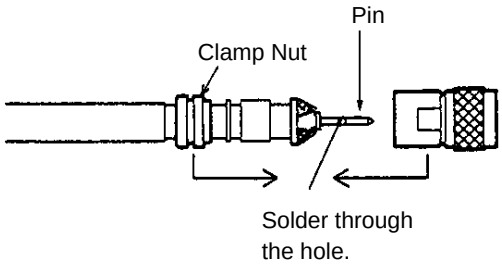


Slip on clamp nut, gasket and clamp as shown left.



Expose the insulator by 1.8 mm.

Expose the core by 4.5 mm.



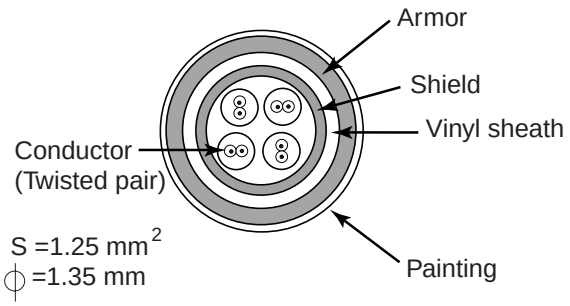
Slip the pin onto the conductor. Solder them together through the hole on the pin.

Insert the pin into the shell. Screw the clamp nut into the shell.
(Tighten by turning the clamp nut. Do not tighten by turning the shell.)

How to fabricate antenna cable 12D-SFA-CV

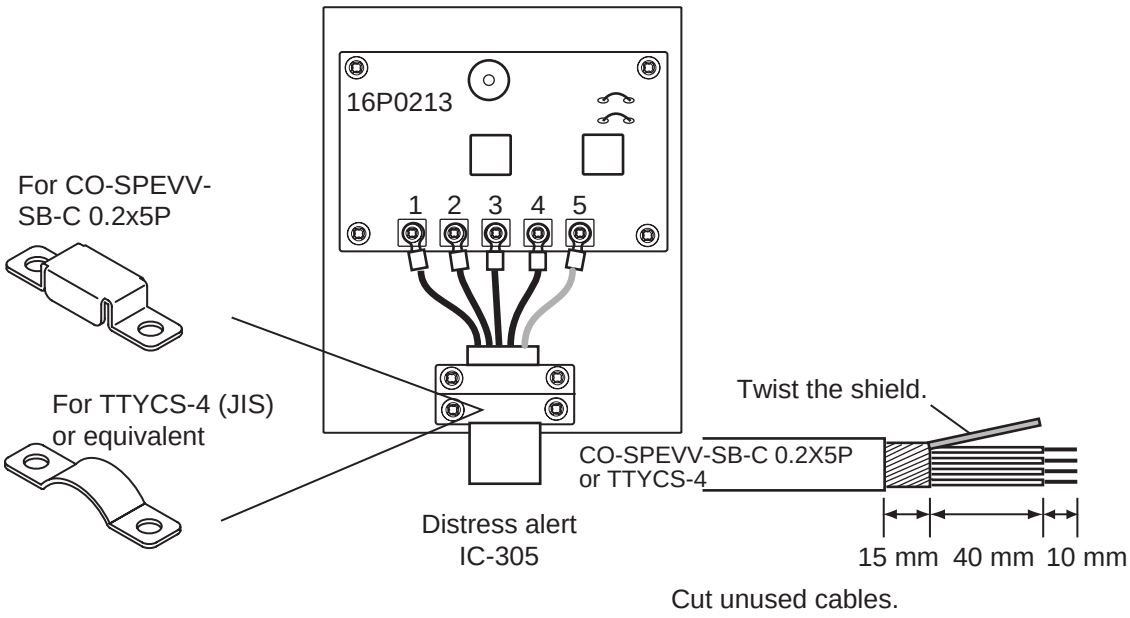
2.2 Distress Alert/Received Call Unit IC-305

Use the installation material CP16-02201 to connect the distress alert IC-305. The optional CO-SPEVV-SB-C 0.2x5P cable or JIS cable (Japan Industrial Standards) TTYCS-4 or equivalent are available to connect with the junction box IC-305. Select the cable clamp attached depending on the diameter of cable, and fix the armor of cable with the clamp.



(Sectional view)

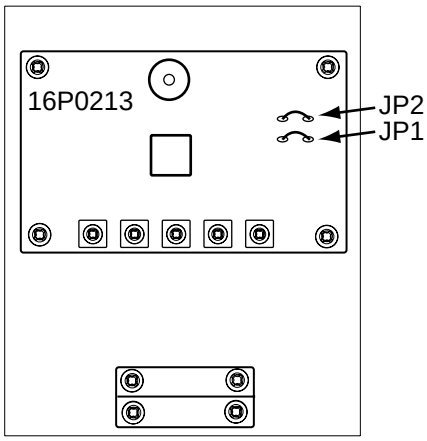
TTYCS-4 cable, sectional view



Wiring of distress alert IC-305

2.3 Alarm Unit IC-306

Maximum two alarm units can be connected to the junction box IC-315 in parallel. To distinguish the incoming indictors, set jumper wires for the second alarm unit as below. For connection, refer to the “2.2 Distress Alert/Received Call Unit IC-305.”



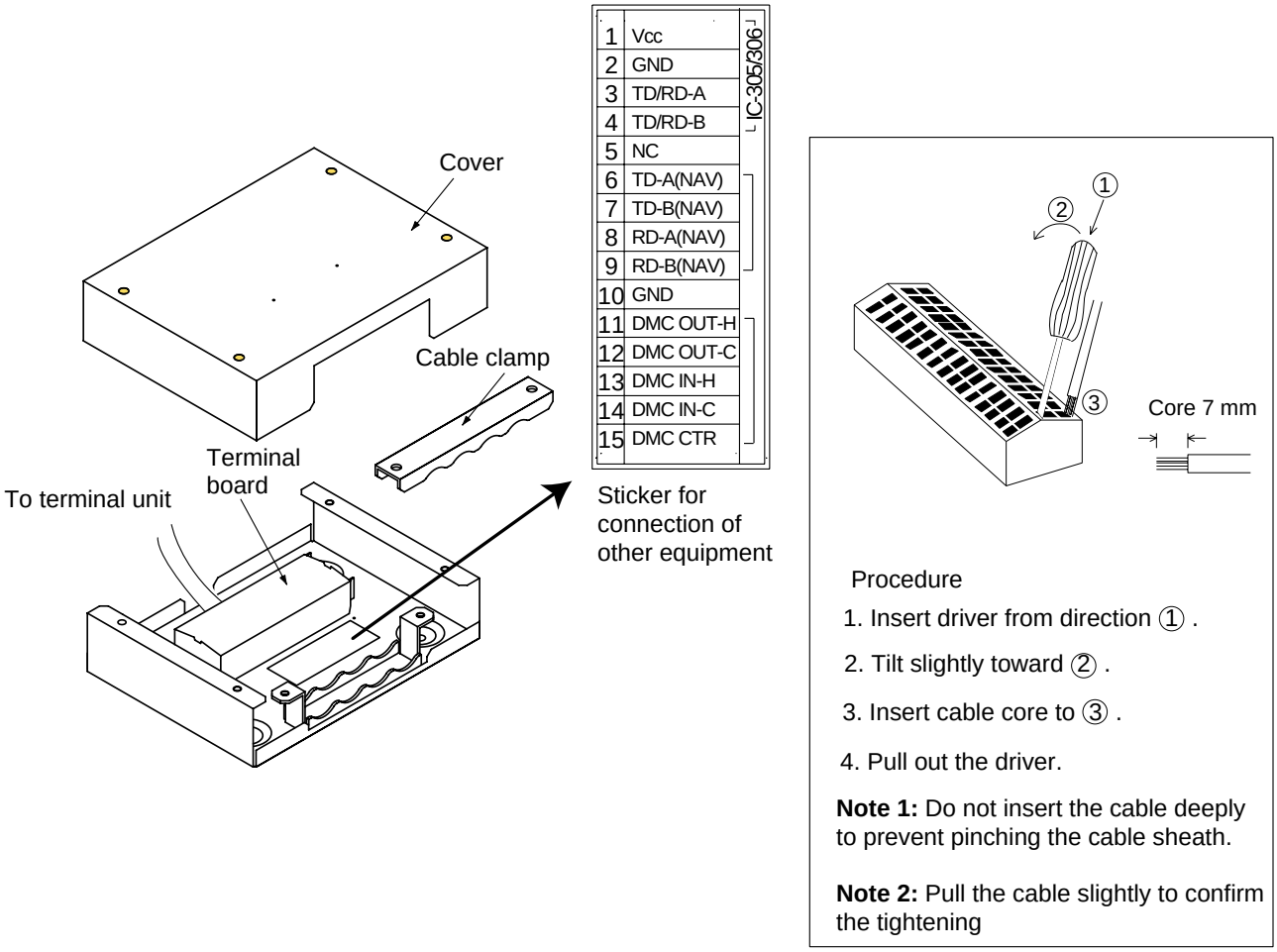
Alarm unit IC-306

	No. 1 (default setting)	No. 2
JP1	Cut	Cut
JP2	Shorten	Cut

2.4 Junction Box IC-315

Use the junction box IC-315 to connect the distress alert/received call unit IC-305 and other unit (max. four units) to the terminal unit.
Unfasten four screws to remove the box cover to connect cables.

For connection, use the optional 5 pair cable CO-SPEVV-SB-C 0.2x5P, JIS cable (Japan Industrial Standards) TTYCS-4 or equivalent. When using the CO-SPEVV-SB-C 0.2x5P cable, replace the cable clamp with the cable clamp 16-018-6008-1, supplied with IC-315.



Junction Box IC-315

Input/output sentences

The following sentences can be input/output with the navigator connected.

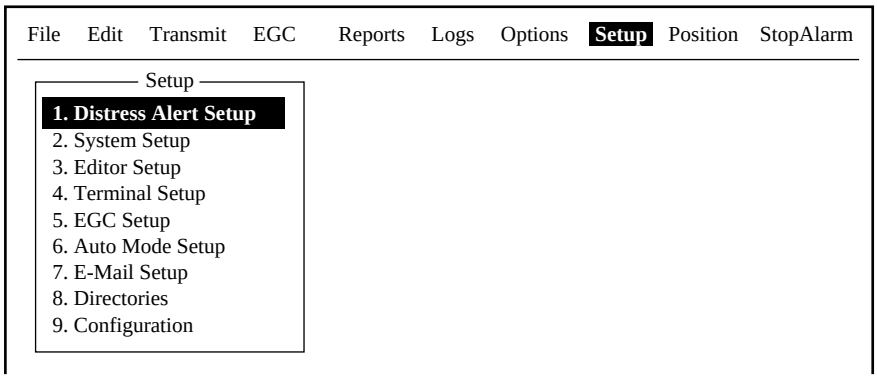
Input sentences	Output sentences
GGA, GLL, VTG, WPL, RMA, RMB, RMC, MTW, DBT, BWC, BWR, VDR, ZDA	GGA, ZDA, GLL, VTG, RMC, GSV

3. INITIAL SETTINGS

3.1 Setting the IMN (INMARSAT MOBILE NO.)

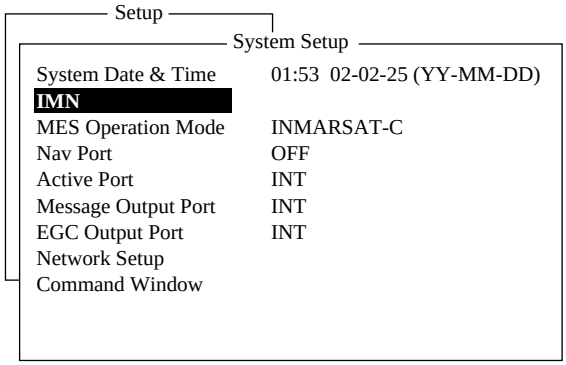
After the wiring, set your IMN (Inmarsat Mobile No.) as below.

1. Turn the power on.
2. Press the function key [F8] to show the Setup menu.



Setup menu

3. Press [2] key to display the System Setup menu.



System Setup menu

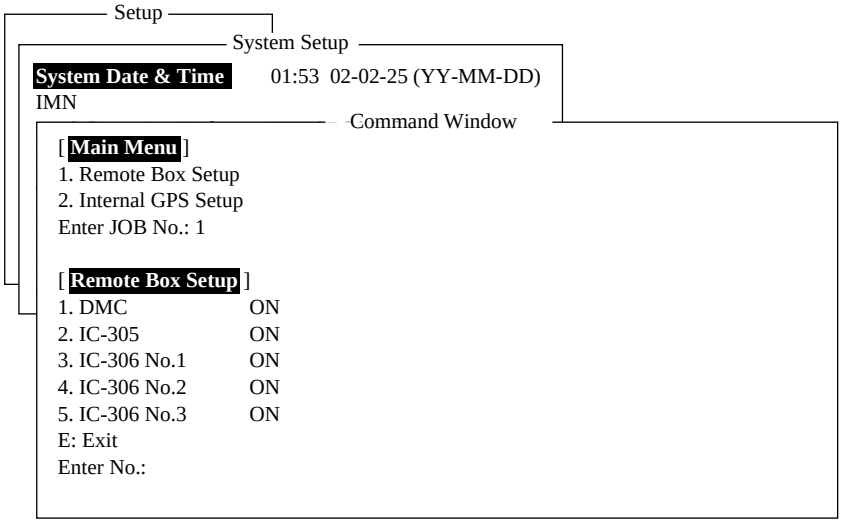
4. Confirm that the IMN is selected, and then press the [Enter] key.
   The entering field appears.
5. Key in your IMN.
6. Press the [Enter] key.
7. Press the [Esc] key to disappear the entering field.
8. Press the [Enter] key.

To clear the IMN, press [I] [M] [N] in order while pressing the [Alt] key down at step 5.

3.2 Setting for External Equipment

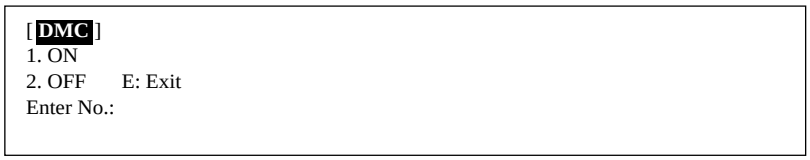
The FELCOM 15 system had been set to accommodate to distress alert/received call unit IC-305, alarm unit IC-306 and distress message controller DMC-5 at factory. If less than three units are connected, change the setting to OFF as below.

1. Press the [F8] key to show the Setup menu.
2. Press the [2] key to show the System Setup menu.
3. Press the [↓] key to select “Command Window”, and then press [Enter] key to show the Command Window screen.
4. Referring to the service manual for FELOM15, fill in the “Enter JOB No.:” and then press the [Enter] key.
5. As similar to step 4, fill in the “PASSWORD:”, and then press the [Enter] key.
   [Main Menu] is highlighted.
6. Press the [1] and [Enter] keys in order.



Command Window screen

7. Press the number key for unit not connected, and then press the [Enter] key.
   For example, press the [1] and [Enter] keys when the DMC-5 is not connected.



Setting window for DMC-5

8. Press the [2] key, and the [Enter] key.
   Instead of a numeric key, press the [E] key to return to Remote Box Setup menu.
9. Repeat steps 7 to 8 for other unit not connected.
10. Press the [Esc] key several times to close the menu.

4. INSTALLATION OF GPS BOARD (OPTION)

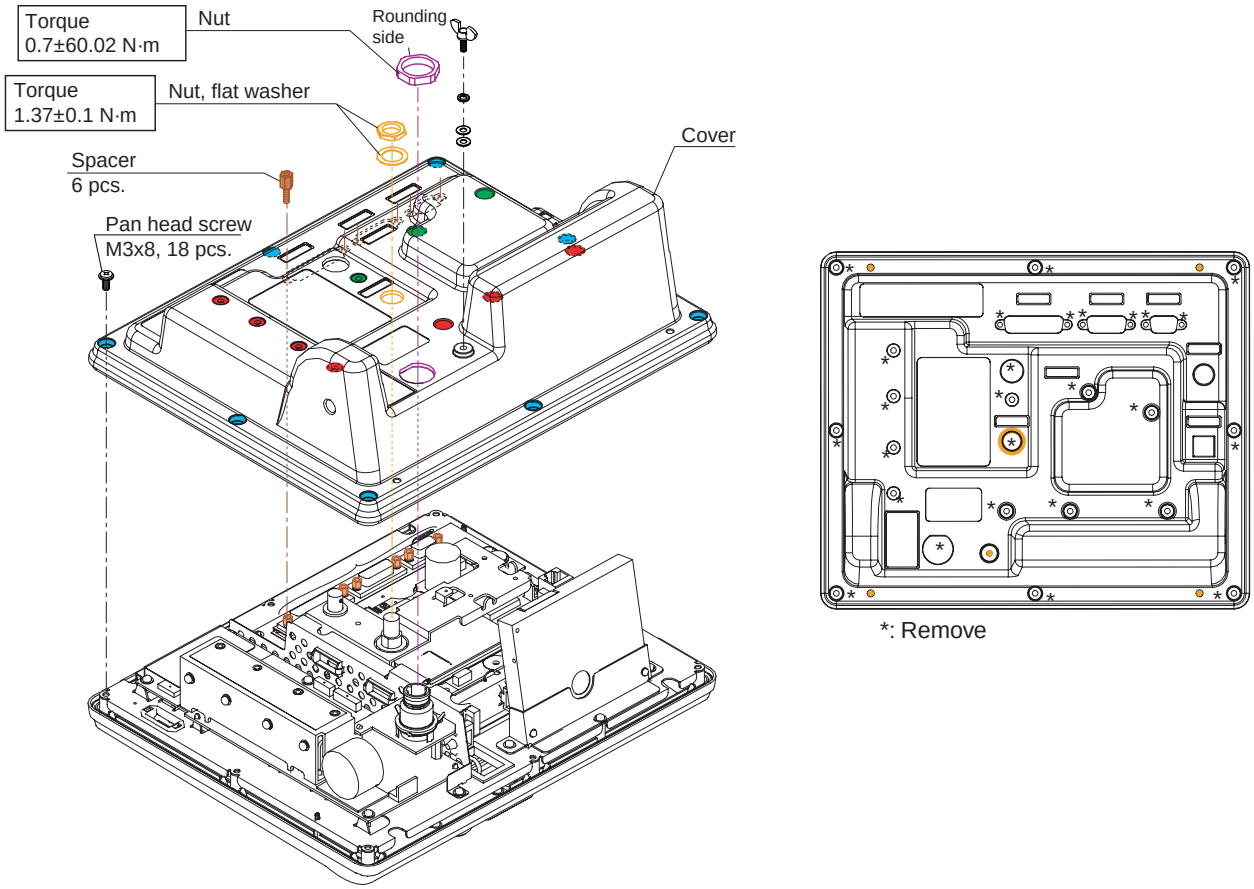
This chapter provides the procedure for the installation of the GPS board (in the terminal unit), which provides GPS position information.

Name: GPS board
Type: OP16-47
Code No.: 000-017-110

Name	Type	Code No.	Qty	Remarks
GPS board	16P0246	004-656-550	1	
Pan head screw	M3x8	000-163-190-10	3	

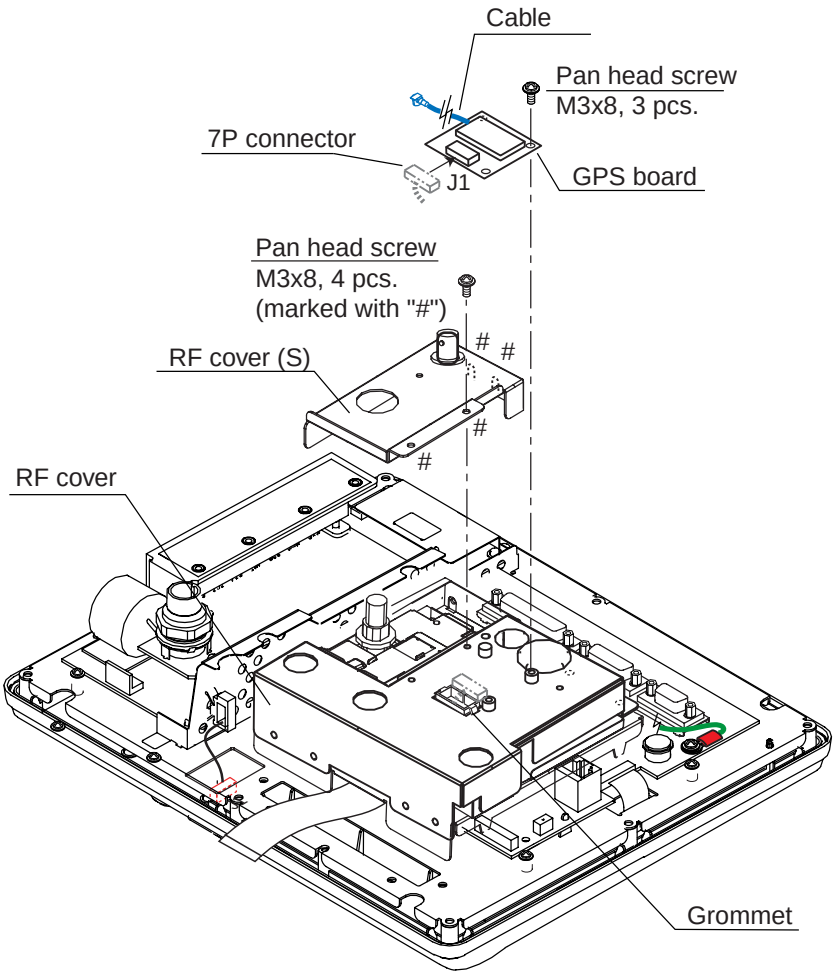
Note: Use anti-static gloves to treat board.

1. Unfasten 18 screws, six spacers and three nuts to remove the terminal unit cover.



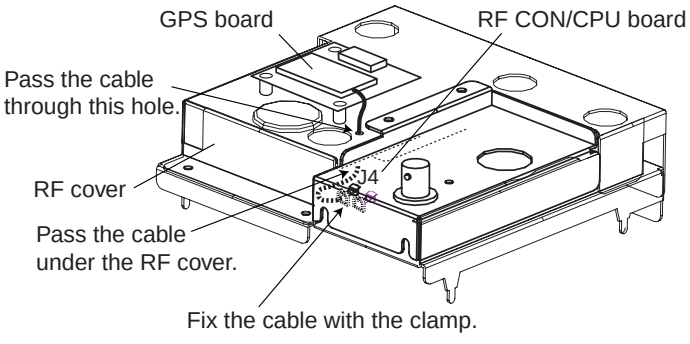
Terminal unit, cover removed

2. Unfasten four pan head screws (M3x8) to remove the RF cover (S).
3. Fasten three pan head screws (M3x8, supplied with the kit) to attach the GPS board to the RF cover.
4. Attach the 7P connector from the RF cover to the JI on the GPS board.



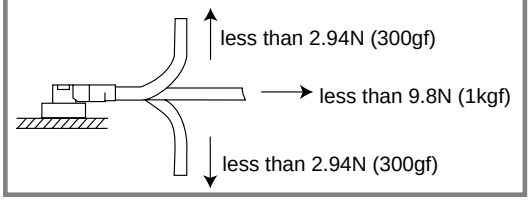
Removing RF Cover (S)/Fixing GPS Board

5. Pass the cable from the GPS board through the hole on the RF cover, and then connect it to J4 on the RF CON/CPU board.



How to treat connectors

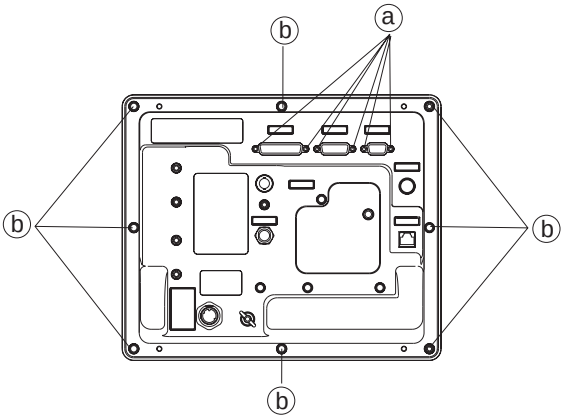
1. Attach the connector at right angle.
   If not, connector pins may be bent.
2. After connecting connector assemblies, the load on their cables should be as below.



Fasten the cable at the clamp next to the J4 connector.

6. Remount the RF cover (S) using four pan head screws (M3x8) unfastened at step 2.

7. Reassemble the terminal unit as below.
   a) Fasten six spacers (a) by hand tentatively.
   b) Fasten eight pan head screws (b) tightly.
   c) Fasten six spacers (a) by box driver tightly.
   d) Fasten other screws and washers to complete.

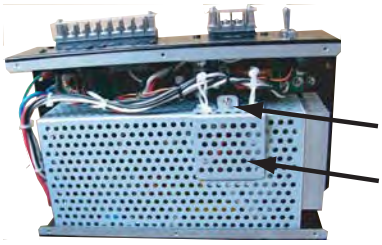


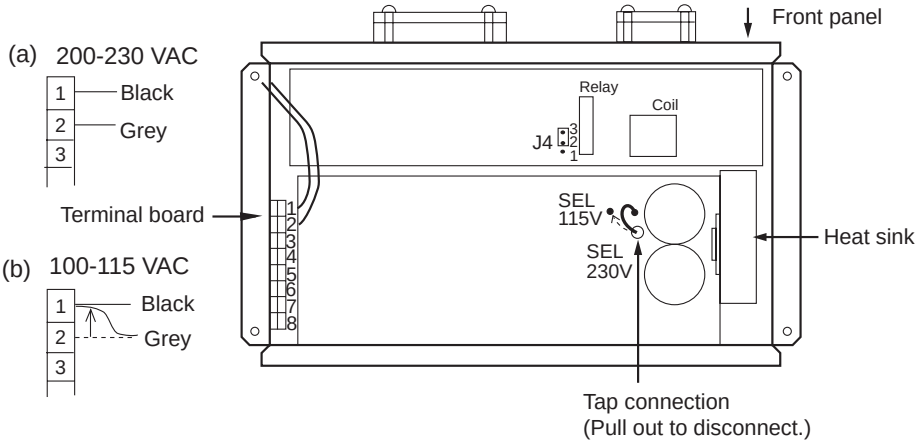
Terminal unit, rear view

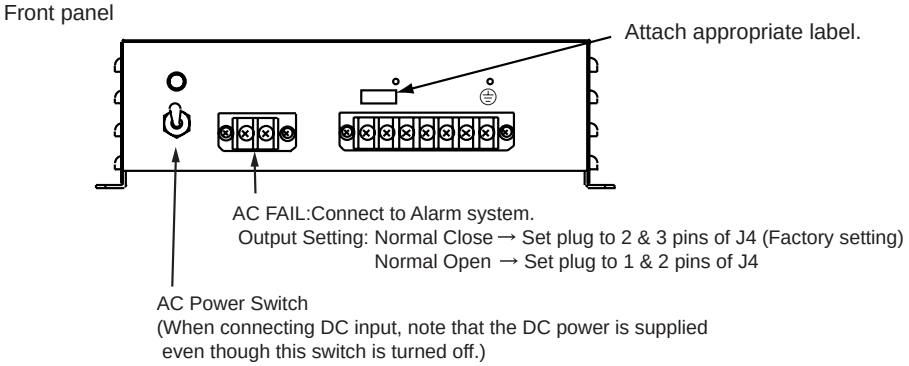
5. CHANGING POWER SUPPLY SPECIFICATIONS

The AC-DC power supply PR-240 is shipped ready for connection to a 200-230 VAC ship's mains. If the ship's mains is 100 VAC-115 VAC, change the tap connection and terminal board connection as below. Attach a label supplied as accessories to the front panel according to the ship's mains.

Ship's mains	Tap connection	Terminal board	Label
200-230 VAC	SEL 230 V	Below (a)	200-230 VAC 2.2-1.7 A 1φ 50/60 Hz
100-115 VAC	SEL 115 V	Below (b)	100-115 VAC 3.2-2.6 A 1φ 50/60 Hz

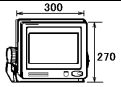
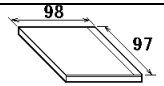
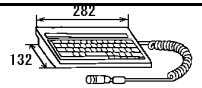
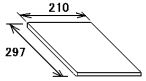
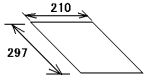


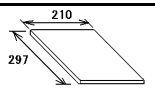
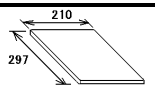
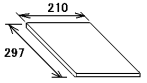
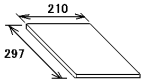
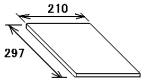



Front panel
Attach appropriate label.
AC FAIL:Connect to Alarm system.
Output Setting: Normal Close → Set plug to 2 & 3 pins of J4 (Factory setting)
Normal Open → Set plug to 1 & 2 pins of J4
AC Power Switch
(When connecting DC input, note that the DC power is supplied even though this switch is turned off.)

Note: The DC output load must be less than 8A.

PACKING LIST IC-215-J*/IC-215-E*

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
ユニット UNIT			
ﾀｰﾐﾅﾙﾕﾆｯﾄ TERMINAL UNIT		IC-215* 000-043-432-00 **	1
予備品 SPARE PARTS SP16-01301			
予備品 SPARE PARTS		SP16-01301 (IC-215用) 004-439-370-00	1
付属品 ACCESSORIES FP16-00600			
ﾌﾛｯﾋﾟｰﾃﾞｨｽｸ組品 FLOPPY DISK		FP16-00601 004-439-400-00	1
ﾐﾆｷｰﾎﾞｰﾄﾞ KEYBOARD		G84-4100PPAUS 000-172-018-10	1
工事材料 INSTALLATION MATERIALS CP16-02301			
工事材料 INSTALLATION MATERIALS		CP16-02301 004-439-380-00	1
工事材料 INSTALLATION MATERIALS CP16-02302			
工事材料 INSTALLATION MATERIALS		CP16-02302 004-439-390-00	1
図書 DOCUMENT			
ｱﾌﾟﾘｹｰｼｮﾝﾌｫｰﾑ REGISTRATION FOR SERVICE ACTIVATION		J5-950010-* ﾜｲｴｲ 000-807-330-1*	1
ﾋｭｰｽﾞ変更のお願い NOTICE FOR FUSE REPLACEMENT		C52-00206-* 000-147-004-1*	1

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
機器引渡し前の注意 BEFORE DELIVERING TO OWNER		C52-00201-* ﾜｲｴｲ 000-809-353-1*	1
取扱説明書 OPERATOR'S MANUAL		OM*-56350-* 000-809-348-1* **	1
取扱説明書 OPERATOR'S MANUAL		OM*-56351-* 000-150-358-1* **	1
装備要領書 INSTALLATION MANUAL		IM*-56350-* 000-809-350-1* **	1
遭難通信要領 DISTRESS COMMUNICATION		TIC-56350-* ﾜｲｴｲ 000-809-352-1*	1

1.ｺｰﾄﾞ番号末尾の[**]は、選択品の代表型式/ｺｰﾄﾞを表します。
CODE NUMBER ENDING WITH "**" INDICATES THE CODE NUMBER OF REPRESENTATIVE MATERIAL

A-1

（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

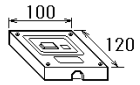
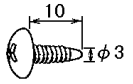
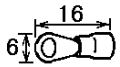
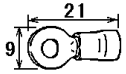
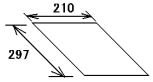
型式/ｺｰﾄﾞ番号が2段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。 なお、品質は変わりません。
TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

PACKING LIST

16AK-X-9855 -3 1/1

A-2

IC-305

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
ユニット UNIT			
遭難警報器 DISTRESS ALERT UNIT		IC-305 000-043-427-00 **	1
工事材料 INSTALLATION MATERIALS		**CP16-02201**	
+ﾄﾗｽﾀｯﾋﾟﾝﾈｼﾞ 1ｼｭ SELF-TAPPING SCREW		3X10 SUS304 000-162-604-10	4
圧着端子 CRIMP-ON LUG		FV1.25-3(LF) 000-166-756-10	4
圧着端子 CRIMP-ON LUG		FV2-3 000-157-246-10	1
図書 DOCUMENT			
IC-305/307引き渡し前の注意 BEFORE DELIVERING TO OWNER		C52-00202-* 000-809-354-1*	1 (*1)

1.(*1)の＊＊＊＊は、有り・無しの仕様が有ります。
AVAILABLE WITH OR WITHOUT ***** UNIT.

型式/ｺｰﾄﾞ番号が2段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。 なお、品質は変わりません。

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

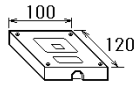
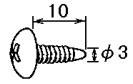
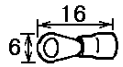
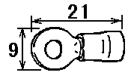
（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

PACKING LIST

16AK-X-9856 -3 1/1

A-3

IC-306

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
ユニット UNIT			
着信指示器 ALARM UNIT		IC-306 000-043-429-00	1
工事材料 INSTALLATION MATERIALS		**CP16-02201**	
+ﾄﾗｽﾀｯﾋﾟﾝﾈｼﾞ 1ｼｭ SELF-TAPPING SCREW		3X10 SUS304 000-162-604-10	4
圧着端子 CRIMP-ON LUG		FV1.25-3(LF) 000-166-756-10	4
圧着端子 CRIMP-ON LUG		FV2-3 000-157-246-10	1

型式/ｺｰﾄﾞ番号が2段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。 なお、品質は変わりません。

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

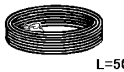
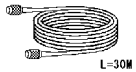
（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO

CODE NO.		16AK-X-9404 -3
TYPE		1/1

工事材料表
INSTALLATION MATERIALS

IC-115

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	ｹｰﾌﾞﾙ組品 CABLE ASSY.	 L=100M	12D-SFA-CV *100M* CODE NO. 000-138-866-00	1	選択 TO BE SELECTED
2	ｱﾝﾃﾅｹｰﾌﾞﾙ組品 CABLE ASSY.	 L=50M	8D-FB-CV *50M* CODE NO. 000-117-599-00	1	選択 TO BE SELECTED
3	ｹｰﾌﾞﾙ組品 CABLE ASSY.	 L=30M	TP5FBAW-5DFBB 30M CODE NO. 000-159-523-11	1	選択 TO BE SELECTED

型式/ｺｰﾄﾞ番号が２段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。　なお、品質は変わりません。

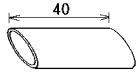
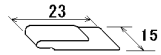
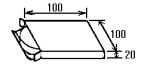
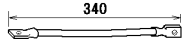
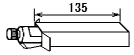
TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

（略図の寸法は、参考値です。　DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO

CODE NO.	004-439-060-00	16AK-X-9401 -7
TYPE	CP16-02101	1/1

工事材料表
INSTALLATION MATERIALS

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	ｲﾗｯｸｽｽﾘｰﾌﾞ SCM2 INSULATION SLEEVE		07-1220 ｸﾛ *40MM* CODE NO. 000-165-300-10	1	
2	ｹｰﾌﾞﾙ保護材 CABLE PROTECTION MATERIAL		16-018-1251-1 ROHS CODE NO. 100-298-111-10	1	
3	ﾌﾞﾁﾙｺﾞﾑﾃｰﾌﾟ SELF-BONDING TAPE		NO.15 CODE NO. 000-835-526-00	1	
4	ｱｰｽ線 GROUND WIRE		RW-4747-1 CODE NO. 000-566-000-01	1	
5	ｹﾐｼｰﾙ SILICON RUBBER		S-8400W ｱﾙﾐﾁｭｰﾌﾞ 50G S-8400W ｱﾙﾐﾁｭｰﾌﾞ 50G CODE NO. 000-158-483-10 000-158-483-00	1	

型式/ｺｰﾄﾞ番号が２段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。　なお、品質は変わりません。

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

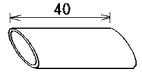
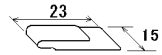
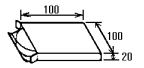
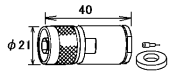
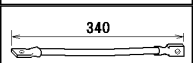
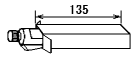
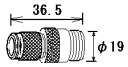
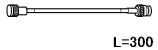
（略図の寸法は、参考値です。　DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO

CODE NO.	004-439-070-00	16AK-X-9402 -8
TYPE	CP16-02111	1/1

工事材料表

INSTALLATION MATERIALS

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	ｲﾗｯｸｽｽﾘｰﾌﾞ SCM2 SHRINK TUBING		07-1220 ｸﾛ *40MM* CODE NO. 000-165-300-10	1	
2	ｹｰﾌﾞﾙ保護材 CABLE PROTECTION MATERIAL		16-018-1251-1 ROHS CODE NO. 100-298-111-10	1	
3	ﾌﾞﾁﾙｺﾞﾑﾃｰﾌﾟ SELF-BONDING TAPE		NO.15 CODE NO. 000-835-526-00	1	
4	ｺﾈｸﾀ(N) CONNECTOR		N-P-8DFB-CF CODE NO. 000-156-918-10	1	
5	ｱｰｽ線 GROUND WIRE		RW-4747-1 CODE NO. 000-566-000-01	1	
6	ｹﾐｼｰﾙ SILICON RUBBER		S-8400W ｱﾙﾐﾁｭｰﾌﾞ 50G S-8400W ｱﾙﾐﾁｭｰﾌﾞ 50G CODE NO. 000-158-483-10 000-158-483-00	1	
7	ｺﾈｸﾀ(TNC-N) COAXIAL CONNECTOR ADAPTOR		TNCP-NJ CODE NO. 000-156-599-10	1	
8	ｹｰﾌﾞﾙ組品 CABLE ASSY.		TPA5FB0.3NJ5FBA-5DFB CODE NO. 000-159-524-10	1	

型式/ｺｰﾄﾞ番号が２段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。　なお、品質は変わりません。

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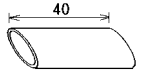
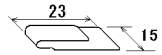
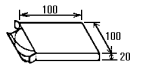
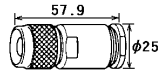
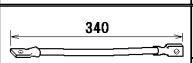
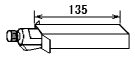
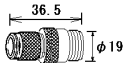
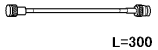
（略図の寸法は、参考値です。　DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO

CODE NO.	004-439-080-00	16AK-X-9403 -8
TYPE	CP16-02121	1/1

工事材料表

INSTALLATION MATERIALS

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	ｲﾗｯｸｽｽﾘｰﾌﾞ SCM2 INSULATION SLEEVE		07-1220 ｸﾛ *40MM* CODE NO. 000-165-300-10	1	
2	ｹｰﾌﾞﾙ保護材 CABLE PROTECTION MATERIAL		16-018-1251-1 ROHS CODE NO. 100-298-111-10	1	
3	ﾌﾞﾁﾙｺﾞﾑﾃｰﾌﾟ SELF-BONDING TAPE		NO.15 CODE NO. 000-835-526-00	1	
4	ｺﾈｸﾀ(N) CONNECTOR		N-SP-12DSFA-CF N-SP-12DSFA CODE NO. 000-170-646-10 000-136-422-00	1	
5	ｱｰｽ線 GROUND WIRE		RW-4747-1 CODE NO. 000-566-000-01	1	
6	ｹﾐｼｰﾙ SILICON RUBBER		S-8400W ｱﾙﾐﾁｭｰﾌﾞ 50G S-8400W ｱﾙﾐﾁｭｰﾌﾞ 50G CODE NO. 000-158-483-10 000-158-483-00	1	
7	ｺﾈｸﾀ(TNC-N) COAXIAL CONNECTOR ADAPTOR		TNCP-NJ CODE NO. 000-156-599-10	1	
8	ｹｰﾌﾞﾙ組品 CABLE ASSY.		TPA5FB0.3NJ5FBA-5DFB CODE NO. 000-159-524-10	1	

型式/ｺｰﾄﾞ番号が２段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。　なお、品質は変わりません。

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

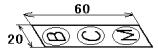
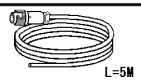
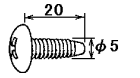
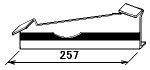
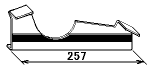
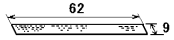
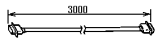
（略図の寸法は、参考値です。　DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO

CODE NO.	004-441-780-00	16AC-X-9420 -6
TYPE	CP16-01200	1/1

工事材料表

INSTALLATION MATERIALS

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	ﾊﾘﾏｰｸ(INMAR) LABEL (INMAR)		16-007-6919-0 ROHS CODE NO. 100-217-010-10	1	
2	ｹｰﾌﾞﾙ組品 POWER CABLE ASSY.		16S0084-0 CODE NO. 000-159-709-10	1	
3	+ﾄﾗｽﾀｯﾋﾟﾝﾈｼﾞ 1ｼｭ SELF-TAPPING SCREW		5X20 SUS304 CODE NO. 000-162-608-10	4	
4	ﾌﾟﾘﾝﾀ取付板(1)組品 PRINTER FIXTURE		CP16-00501 CODE NO. 004-434-400-00	1	
5	ﾌﾟﾘﾝﾀ取付板(2)組品 PRINTER FIXTURE		CP16-00502 CODE NO. 004-434-410-00	1	
6	ﾊﾘﾏｰｸ LABEL		16-007-6927-0 ROHS 16-007-6927-0 CODE NO. 100-222-480-10 100-222-480-00	1	COMPASS SAFE DISTANCE
7	ｹｰﾌﾞﾙ組品 CABLE ASSY.		17JE-23250-02 CODE NO. 000-138-539-00	1	ﾀｰﾐﾅﾙﾕﾆｯﾄ用 / FOR TERMINAL UNIT

型式/ｺｰﾄﾞ番号が２段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。 なお、品質は変わりません。

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

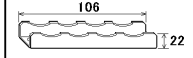
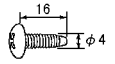
（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO

CODE NO.	004-438-930-00	16AK-X-9407 -3
TYPE	CP16-02501	1/1

工事材料表

INSTALLATION MATERIALS

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	ｹｰﾌﾞﾙ押え(1-3) CABLE CLAMP		16-018-6008-1 ROHS 16-018-6008-1 CODE NO. 100-301-101-10 100-301-101-00	1	
2	+ﾄﾗｽﾀｯﾋﾟﾝﾈｼﾞ 1ｼｭ SELF-TAPPING SCREW		4X16 SUS304 CODE NO. 000-162-605-10	4	

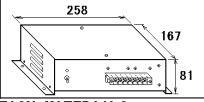
型式/ｺｰﾄﾞ番号が２段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。 なお、品質は変わりません。

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

PACKING LIST

PR-240/-CE-MSA

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
ユニット UNIT			
AC-DC電源 POWER SUPPLY UNIT		PR-240 000-013-636-00 **	1
工事材料 INSTALLATION MATERIALS			
工事材料 INSTALLATION MATERIALS		CP24-00151 005-931-190-00	1

コード番号末尾の[**]は、選択品の代表コードを表します。
CODE NUMBER ENDING WITH "**" INDICATES THE CODE NUMBER OF REPRESENTATIVE MATERIAL.

型式/コード番号が2段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。 なお、品質は変わりません。

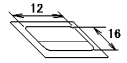
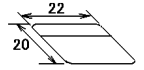
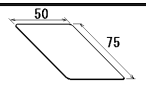
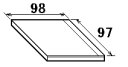
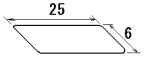
TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO

CODE NO.	004-439-840-00	16AK-X-9412 -2
TYPE	0P16-26	1/1

改造キット
MODIFICATION KIT.

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	中国ROHSマーク CHINA ROHS SEAL		05-898-0362-1 CODE NO. 100-339-211-10	1	
2	ハリマーク(ALC) LABEL		16-013-1052-0 ROHS 16-013-1052-0 CODE NO. 100-281-730-10 100-281-730-00	4	
3	型式銘板(ALC) NAME PLATE(ALC)		16-018-3821-2 CODE NO. 100-308-482-10	1	
4	FD-ROM FLOPPY DISK ROM		16-5-0179 CODE NO. 004-439-850-00	1	
5	FFAシール SEAL		FFA CODE NO. 000-150-470-00	3	

（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）
型式/コード番号が２段の場合、下段より上段に代わる過渡期品でどちらかが入っています。 なお、品質は変わりません。

TOW TYPES AND CODES MAY BE LISTED. THE BOTTOM PRODCT MAY BE SHIPPED IN PLACE OF THE TOP PRODUCT. QUALITY THE SAME.

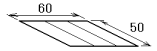
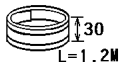
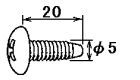
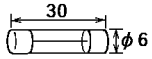
FURUNO ELECTRIC CO ., LTD.

FURUNO

CODE NO.	004-439-380-00	16AK-X-9414 -4
TYPE	CP16-02301	1/1

工事材料表
INSTALLATION MATERIALS

IC-215

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	ﾋｭｰｽﾞﾏｰｸ FUSE LABEL		03-153-1312-0 ROHS CODE NO. 100-292-140-10	1	
2	ｱｰｽ板 COPPER STRAP		05-003-0031-0 ROHS 05-003-0031-0 CODE NO. 590-300-310-10 590-300-310-00	1	
3	+ﾄﾗｽﾀｯﾋﾟﾝﾈｼﾞ 1ｼｭ SELF-TAPPING SCREW		5X20 SUS304 CODE NO. 000-162-608-10	4	
4	ﾋｭｰｽﾞ FUSE GLASS TUBE TYPE		FGBO 125V 7A PBF CODE NO. 000-155-831-10	1	
5	ｹｰﾌﾞﾙ組品MJ CABLE ASSY.		MJ-A3SPF0018-050ZC CODE NO. 000-154-025-10	1	

型式/ｺｰﾄﾞ番号が２段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。 なお、品質は変わりません。

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

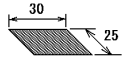
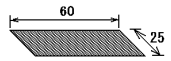
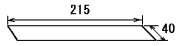
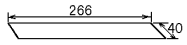
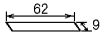
（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO

CODE NO.	004-439-390-00	16AK-X-9415 -5
TYPE	CP16-02302	1/1

工事材料表
INSTALLATION MATERIALS

MINI KEYBOARD
BTC-5100C PS/2 /G84-4100PPAUS

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	ﾌｧｽﾅｰ(3) HOOK LOOP FASTENER		16-007-6814-0 ROHS CODE NO. 100-237-670-10	4	
2	ﾌｧｽﾅｰ(4) HOOK LOOP FASTENER		16-007-6815-0 ROHS CODE NO. 100-237-680-10	4	
3	ﾊﾘﾏｰｸ LABEL		16-011-5813-0 CODE NO. 100-354-210-10	1	G84-4100PPAUS用
4	ﾊﾘﾏｰｸ LABEL		16-011-5803-1 ROHS CODE NO. 100-248-051-10	1	BTC-5100C PS/2用
5	ﾊﾘﾏｰｸ (C.S.D) LABEL (C.S.D)		16-011-5804-0 ROHS CODE NO. 100-248-060-10	1	BTC-5100C PS/2用

型式/ｺｰﾄﾞ番号が２段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。 なお、品質は変わりません。

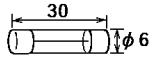
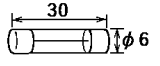
TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO

CODE NO.	004-439-370-00	16AK-X-9301 -2 1/1
TYPE	SP16-01301	BOX NO. P

SHIP NO.	SPARE PARTS LIST FOR	U S E	SETS PER VESSEL

ITEM NO.	NAME OF PART	OUTLINE	DWG. NO. OR TYPE NO.	QUANTITY WORKING PER SET	QUANTITY WORKING PER VES	QUANTITY SPARE	REMARKS/CODE NO.
1	ﾋｭｰｽﾞ FUSE		FGBO 125V 15A PBF			1	000-155-827-10
2	ﾋｭｰｽﾞ FUSE		FGBO 125V 7A PBF			1	000-155-831-10

MFR'S NAME	FURUNO ELECTRIC CO.,LTD.	DWG NO.	16AK-X-9301	1/1

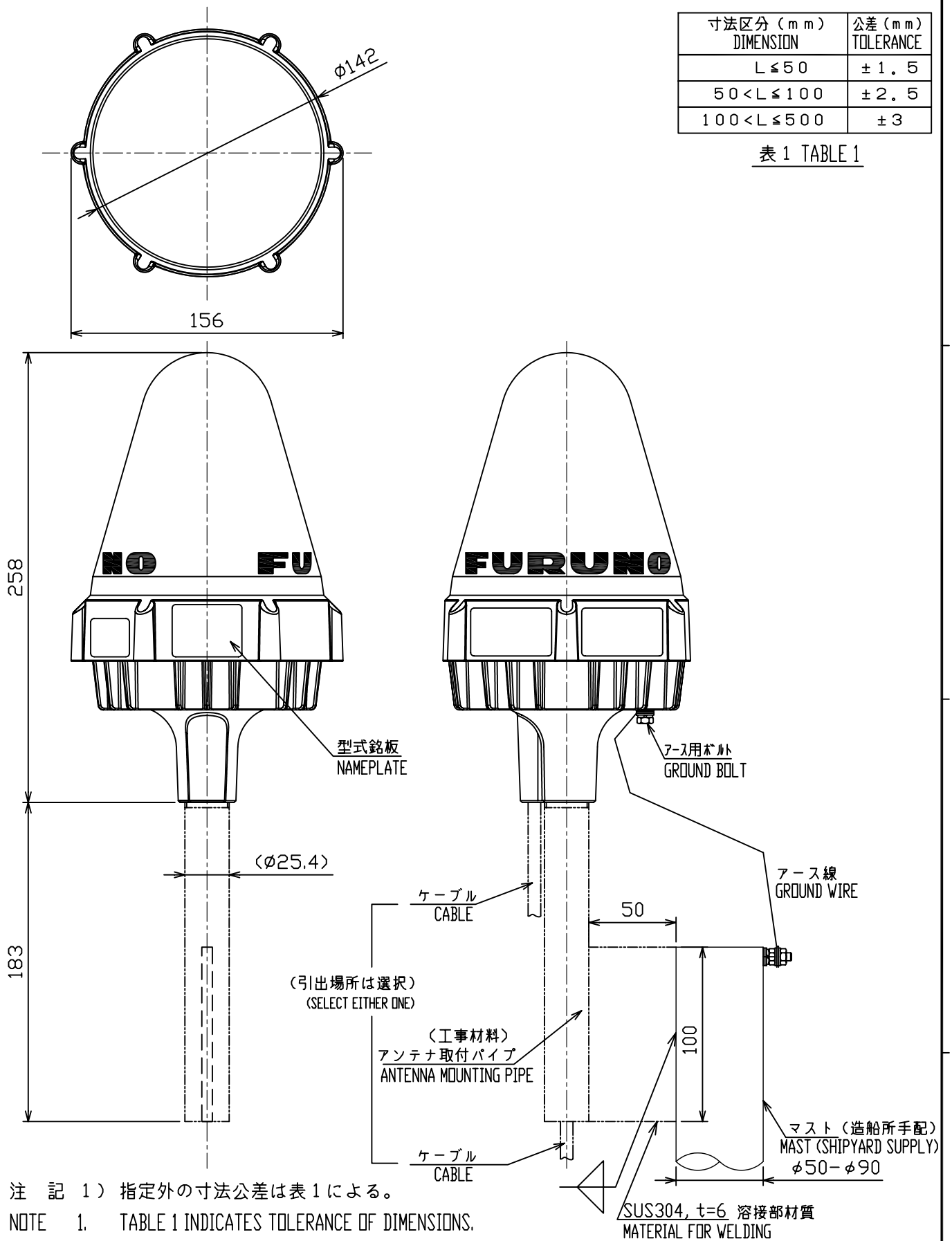
（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

型式/ｺｰﾄﾞ番号が２段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。 なお、品質は変わりません。

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

寸法区分（mm） DIMENSION	公差（mm） TOLERANCE
L≦50	±1.5
50<L≦100	±2.5
100<L≦500	±3

表1 TABLE 1



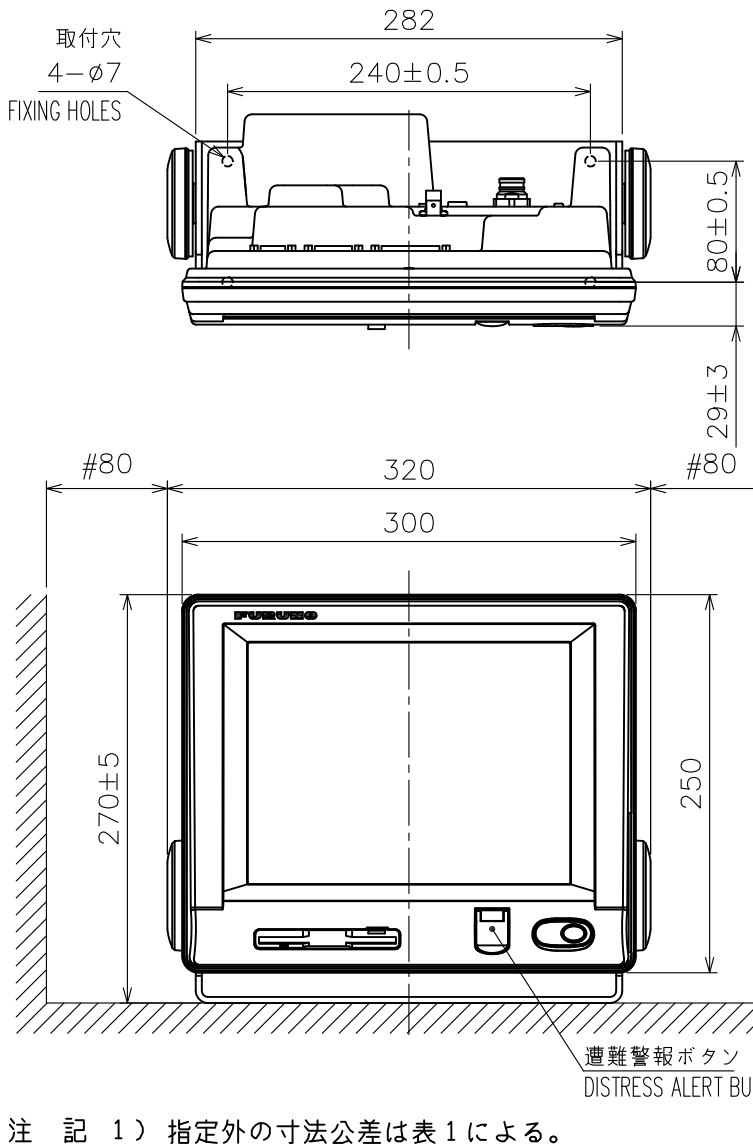
注 記 1） 指定外の寸法公差は表1による。

NOTE 1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.

DRAWN Dec. 9 '05 T.YAMASAKI		TITLE	IC-115/116
CHECKED Dec. 12 '05 T.TAKENO		名称	アンテナユニット
APPROVED Dec.19'05 T.Matsuyuchi	FELCOM 15/16		外寸図
SCALE 1/3	MASS 1.4 ±10% kg 質量はパイプ工材を含まず。 MASS W/O MOUNTING PIPE.	NAME	ANTENNA UNIT
DWG No. C5635-G01- D	16-018-100G-1		OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

FURUNO



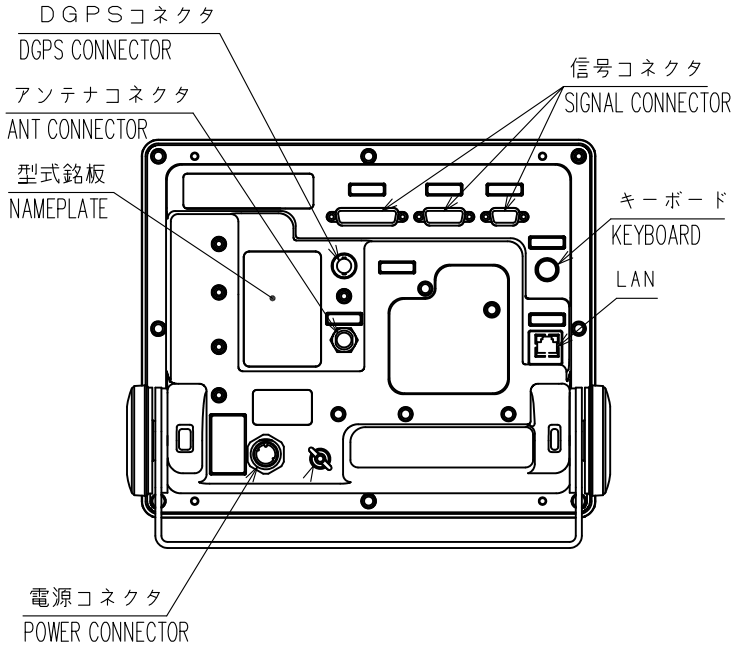


表 1 TABLE 1

寸法区分（mm） DIMENSION	公差（mm） TOLERANCE
L≦50	±1．5
50<L≦100	±2．5
100<L≦500	±3

注　記　1）指定外の寸法公差は表 1 による。
　　2）＃印寸法は最小サービス空間寸法とする。
　　3）取付用ネジはトラスタッピンネジ呼び径５×２０を使用のこと。

NOTE　1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
　　2. #: MINIMUM SERVICE CLEARANCE.
　　3. USE TAPPING SCREWS ø5x20 FOR FIXING THE UNIT.

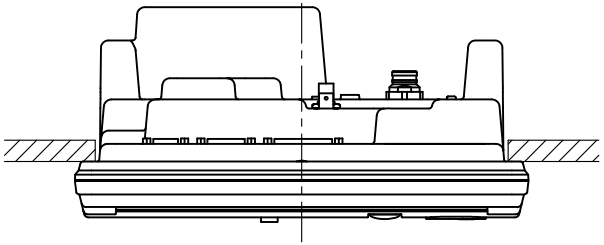
DRAWN 8/Jun/09 T.YAMASAKI		TITLE	IC-215
CHECKED 8/Jun/09 T.TAKENO		名称	ターミナルユニット（卓上装備）
APPROVED 18/Jun/09 R.Esumi	FELCOM 15		外寸図
SCALE 1/5 MASS 4.9 ±10% kg		NAME	TERMINAL UNIT (TABLETOP MOUNT)
DWG. No. C5635-G02-F	REF. No. 16-018-300G-7		OUTLINE DRAWING

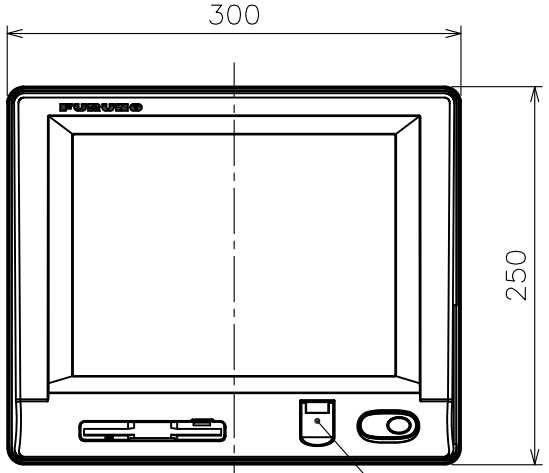
FURUNO ELECTRIC CO., LTD.

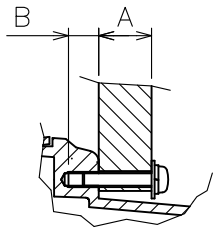
FURUNO

表１ TABLE 1

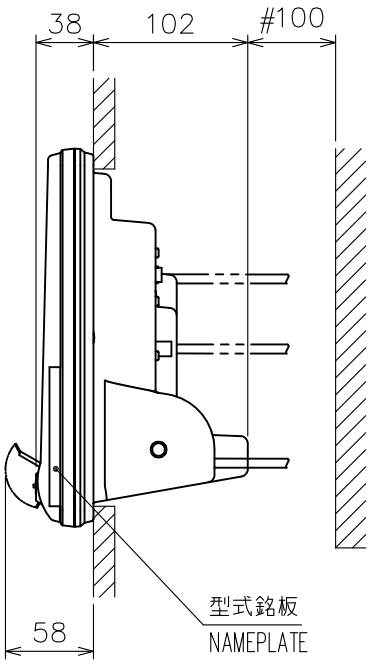
寸法区分（ｍｍ） DIMENSION	公差（ｍｍ） TOLERANCE
Ｌ≦５０	±１．５
５０<Ｌ≦１００	±２．５
１００<Ｌ≦５００	±３

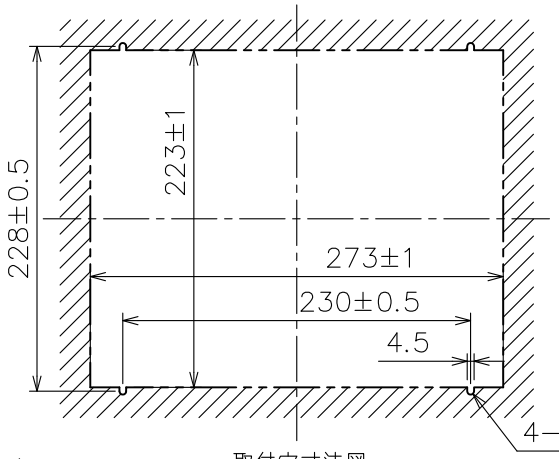




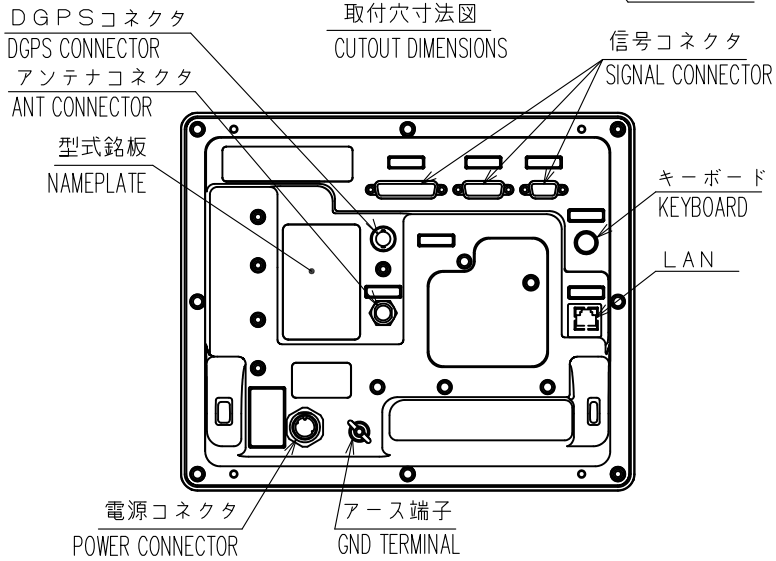


取付ネジ部断面　尺度 1/2
DETAIL FOR FASTENING (SCALE: 1/2)





取付穴寸法図
CUTOUT DIMENSIONS



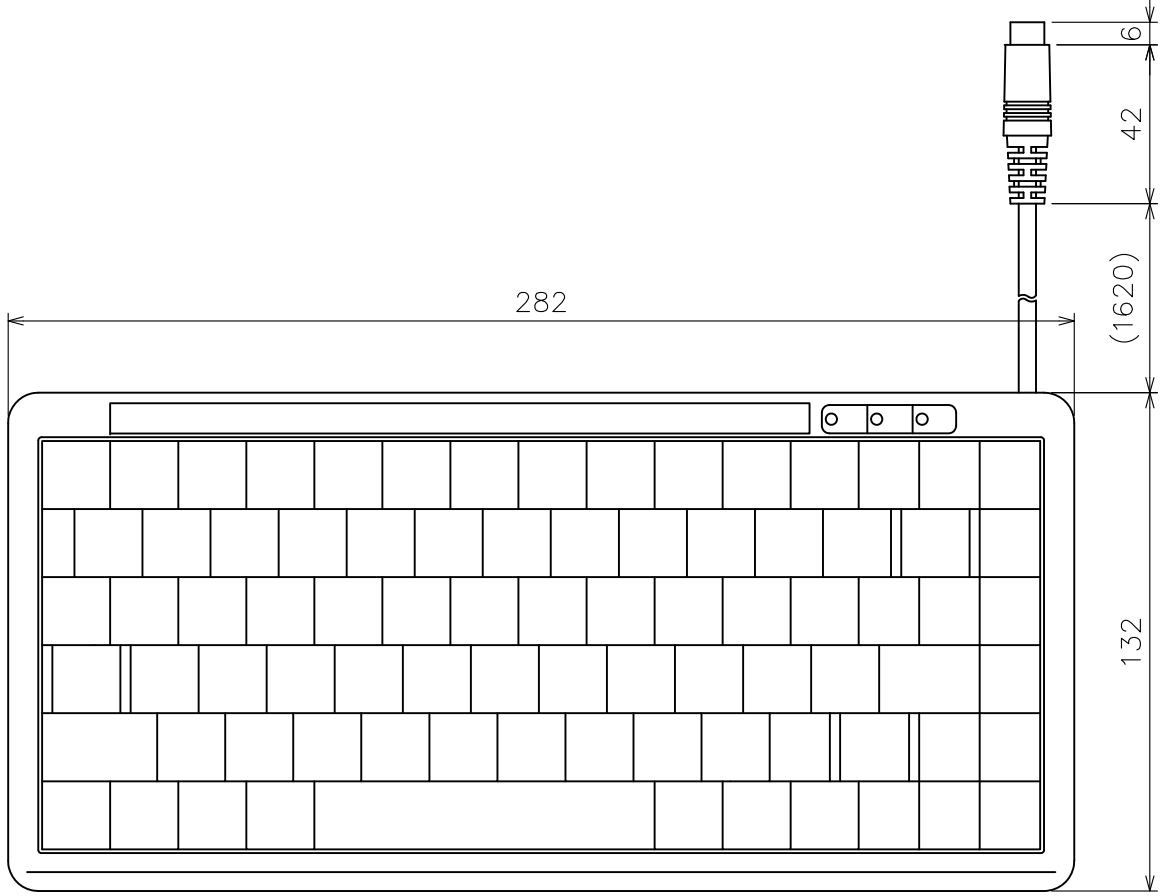
注　記　１）　指定外の寸法公差は表１による。
　　２）　＃印寸法は最小サービス空間寸法とする。
　　３）　取付には、セムスネジＢ Ｍ４×２０を使用のこと。
　　壁の厚さ（Ａ）は１１≦Ａ≦１４とする。それ以外の壁に
　　装備する場合、使用するネジ長さは（Ａ＋７．８）±２とする。
　　筐体にはネジ部（Ｂ）を８ｍｍ以上入れないこと。（Ｂ≦８）

NOTE　1.　TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
　　2.　#: MINIMUM SERVICE CLEARANCE.
　　3.　USE SEMS SCREWS M4x20 FOR FIXING THE UNIT.
　　THICKNESS A: 11≦A≦14 OR SCREW LENGTH: (A+7.8)±2.
　　DO NOT FASTEN SCREWS INTO UNIT MORE THAN 8 mm (B≦8).

DRAWN 8/Jun/09 T.YAMASAKI		TITLE	IC-215
CHECKED 8/Jun/09 T.TAKENO		名称	ターミナルユニット（埋込装備）
APPROVED 18/Jun/09 R.Esumi	FELCOM 15		外寸図
SCALE 1/5	MASS 4.3 ±10% kg	NAME	TERMINAL UNIT (FLUSH MOUNT)
DWG. No. C5635-G03- F	REF. No. 16-018-3106-7		OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

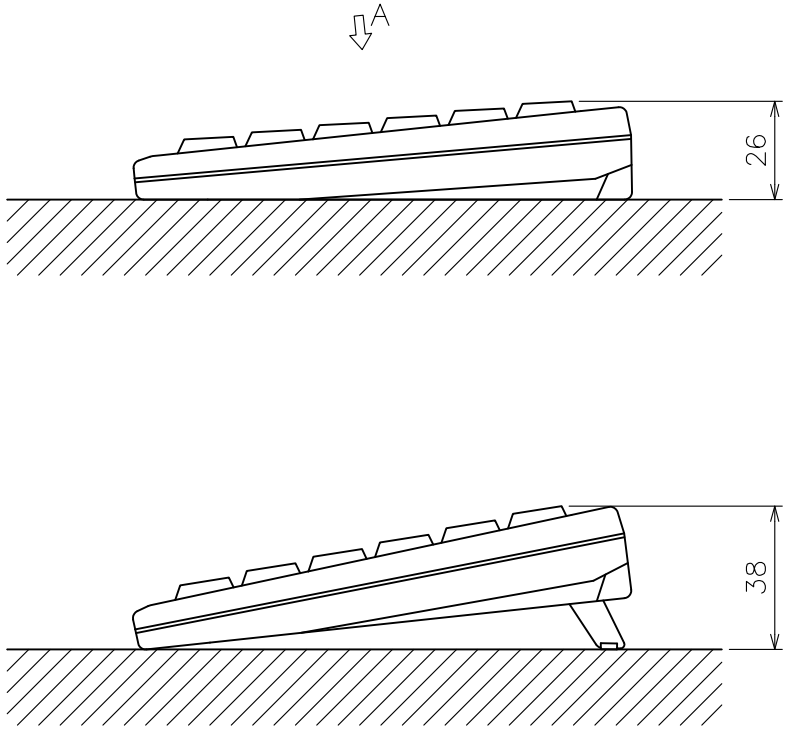
FURUNO



矢視A
VIEW A

表1 TABLE 1

寸法区分（mm） DIMENSION	公差（mm） TOLERANCE
L≦50	±1.5
50<L≦100	±2.5
100<L≦500	±3



注 記　1）指定外の寸法公差は表1による。

NOTE　1. TABLE1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.

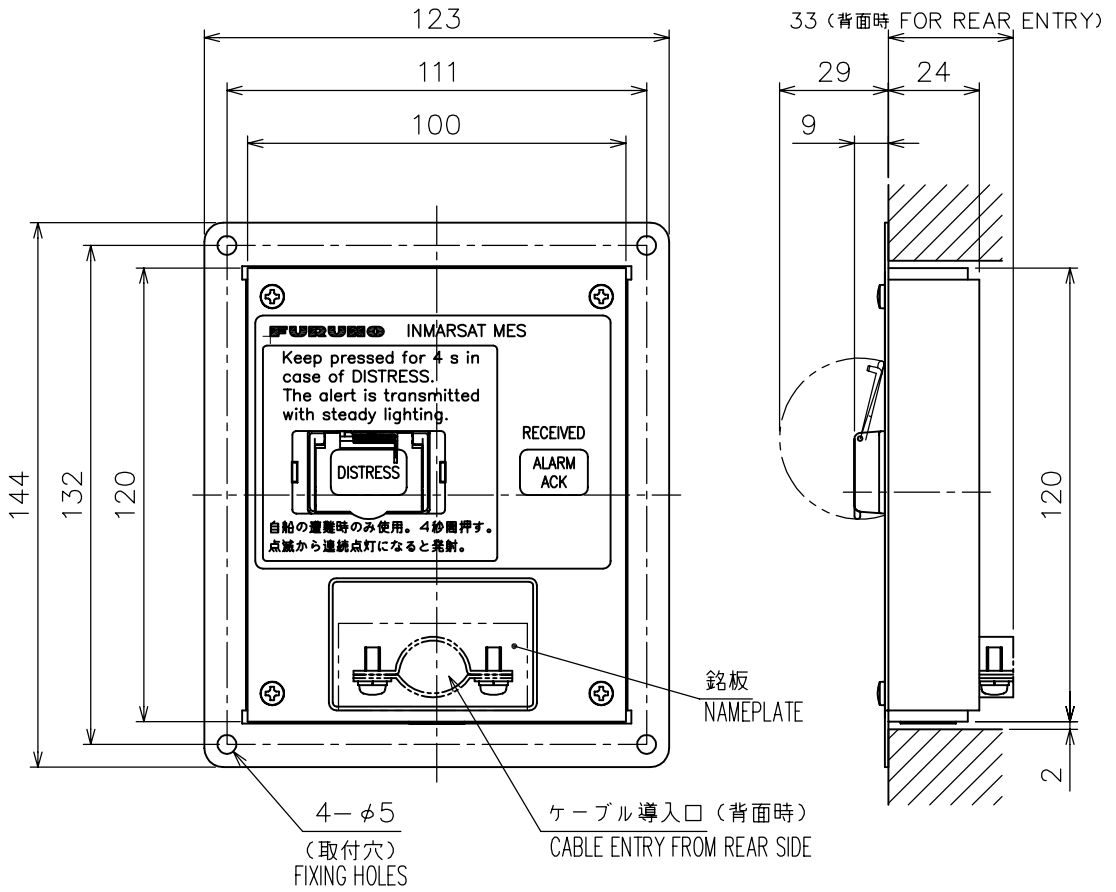
DRAWN 25/Jun/09 T.YAMASAKI			TITLE G84-4100PPAUS
CHECKED 25/Jun/09 T.TAKENO			名称 キーボード
APPROVED 8/Jul/09 R.Esumi			外寸図
SCALE 1/2	MASS 0.4 ±10% kg		NAME KEYBOARD
DWG.No. C5635-G21- A		REF.No. 16-018-910G-0	OUTLINE DRAWING

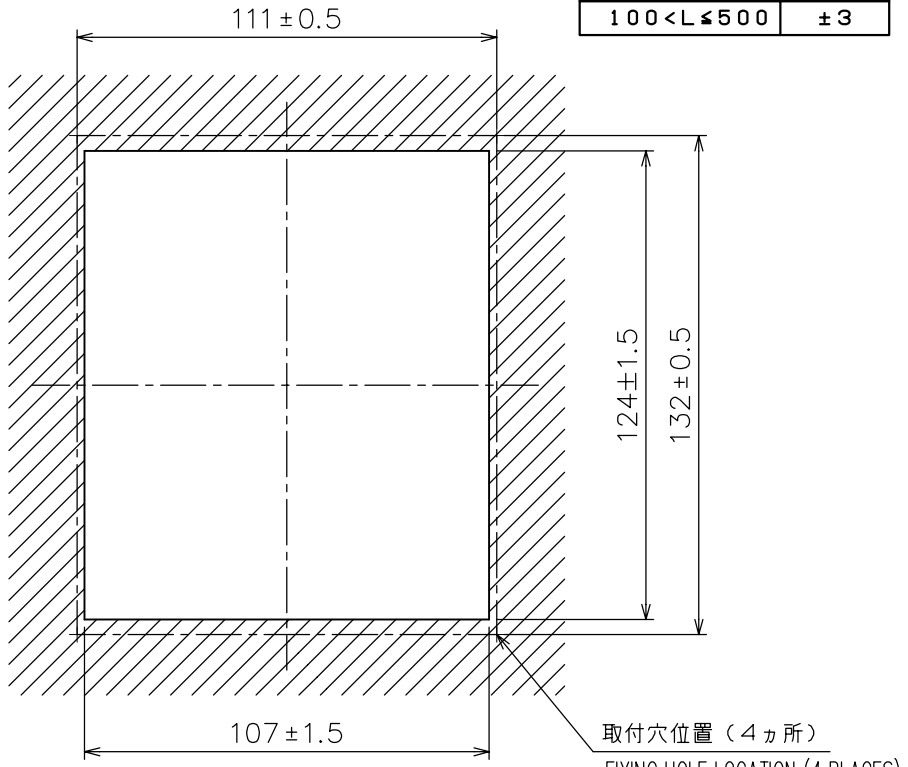
FURUNO ELECTRIC CO., LTD.

D-4

表 1 TABLE 1

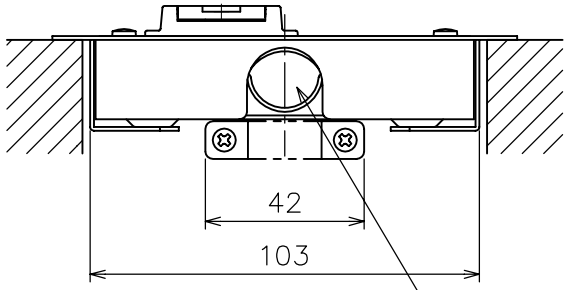
寸法区分（mm） DIMENSIONS	公差（mm） TOLERANCE
L≦50	±1.5
50<L≦100	±2.5
100<L≦500	±3





取付穴寸法図

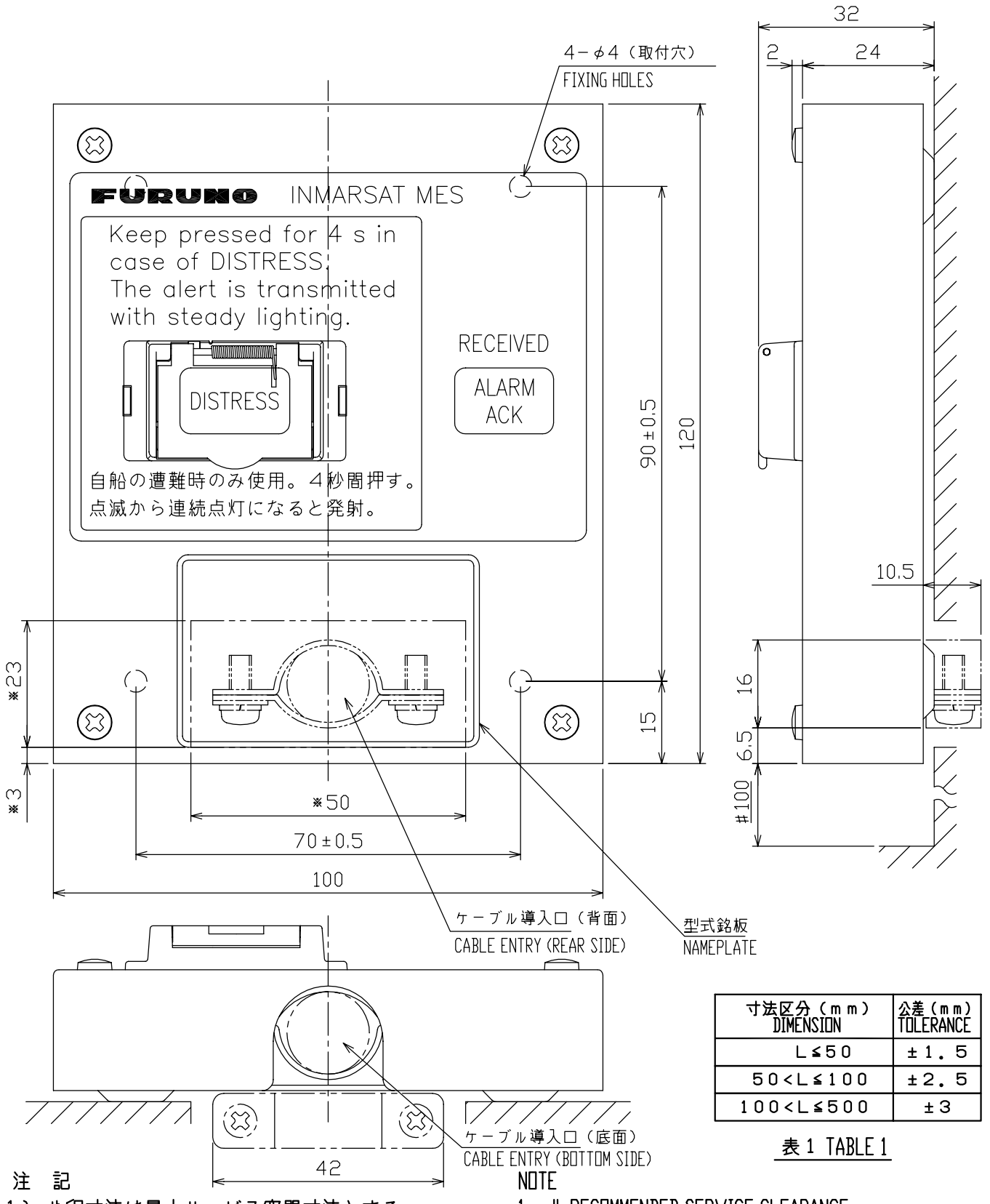
CUTOUT DIMENSIONS



注　記　1）指定外の寸法公差は表1による。
　　2）取付用ネジは＋トラスタッピンネジ呼び径4×16を使用のこと。

NOTE　1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
　　2. USE SELF-TAPPING SCREWS 4X16 FOR FIXING THE UNIT.

DRAWN Apr. 21 '04 E.MIYOSHI		TITLE	IC-305
CHECKED TAKAHASHI. T		名称	遭難警報器（埋込装備）
APPROVED Y. Hatai	FELCOM 15		外寸図
SCALE 1/2 MASS 0.45 ±10% kg		NAME	DISTRESS ALERT/RECEIVED CALL UNIT
DWG.No. C5635-G12- B	16-018-4106-2		OUTLINE DRAWING



寸法区分（mm） DIMENSION	公差（mm） TOLERANCE
L≦50	±1.5
50<L≦100	±2.5
100<L≦500	±3

表１ TABLE 1

注　記

１） #印寸法は最小サービス空間寸法とする。
２） 指定外の寸法公差は表１による。
３） 取付には＋タッピンネジ３×１０を使用のこと。
４） ※印寸法は、背面からのケーブル導入穴寸法。

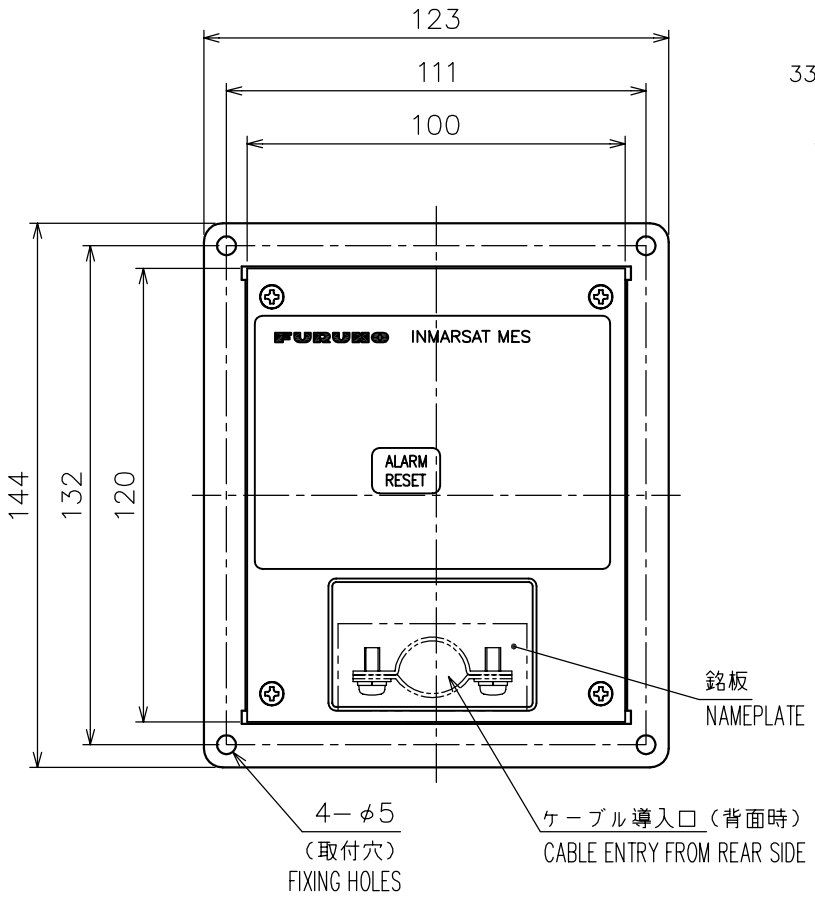
NOTE

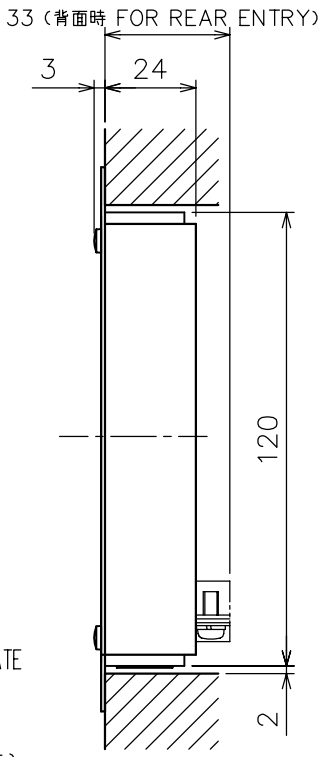
1. #: RECOMMENDED SERVICE CLEARANCE.
2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.
3. USE TAPPING SCREWS 3x10 FOR FIXING THE UNIT.
4. ※: CUTOUT DIMENSIONS FOR REAR SIDE CABLE ENTRY.

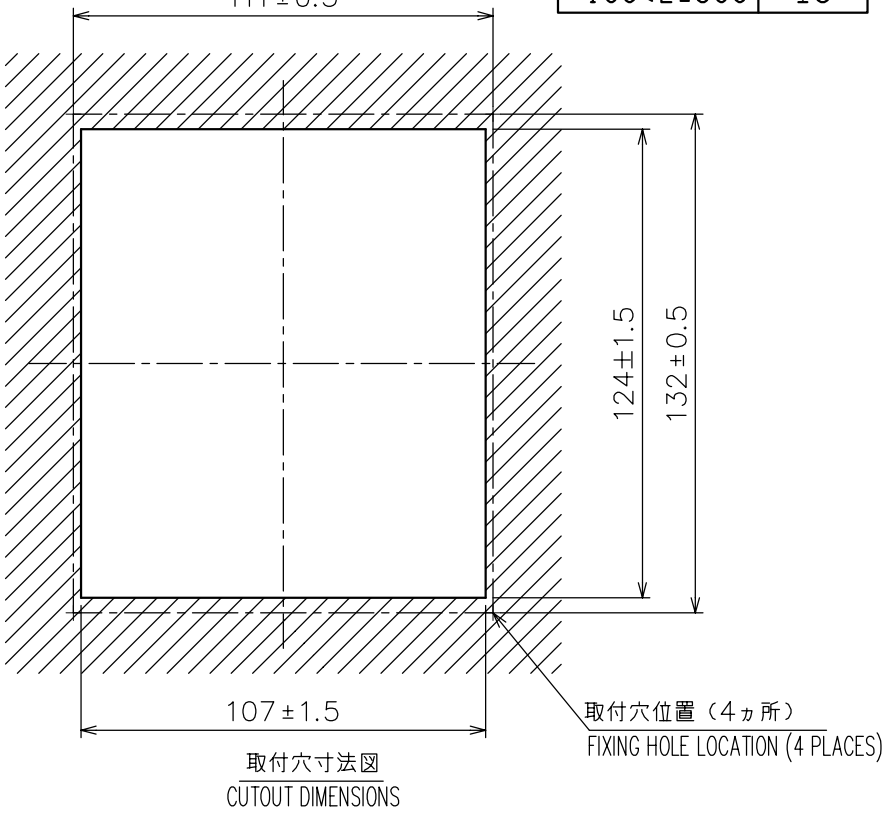
DRAWN July 11 '03 T.YAMASAKI			TITLE IC-305
CHECKED July 14 '03 T.Matsuguchi			名称 遭難警報器
APPROVED July 14'03 T.Matsuguchi		FELCOM 15/16	外寸図
SCALE 1/1	MASS 0.34 ±10% kg		NAME DISTRESS ALERT/RECEIVED CALL UNIT
DWG No. C5635-G04- B		16-018-400G-1	OUTLINE DRAWING

表 1 TABLE 1

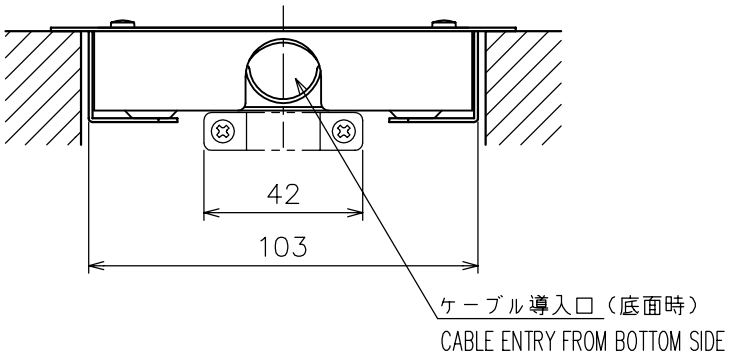
寸法区分（mm） DIMENSIONS	公差（mm） TOLERANCE
L≦50	±1.5
50<L≦100	±2.5
100<L≦500	±3







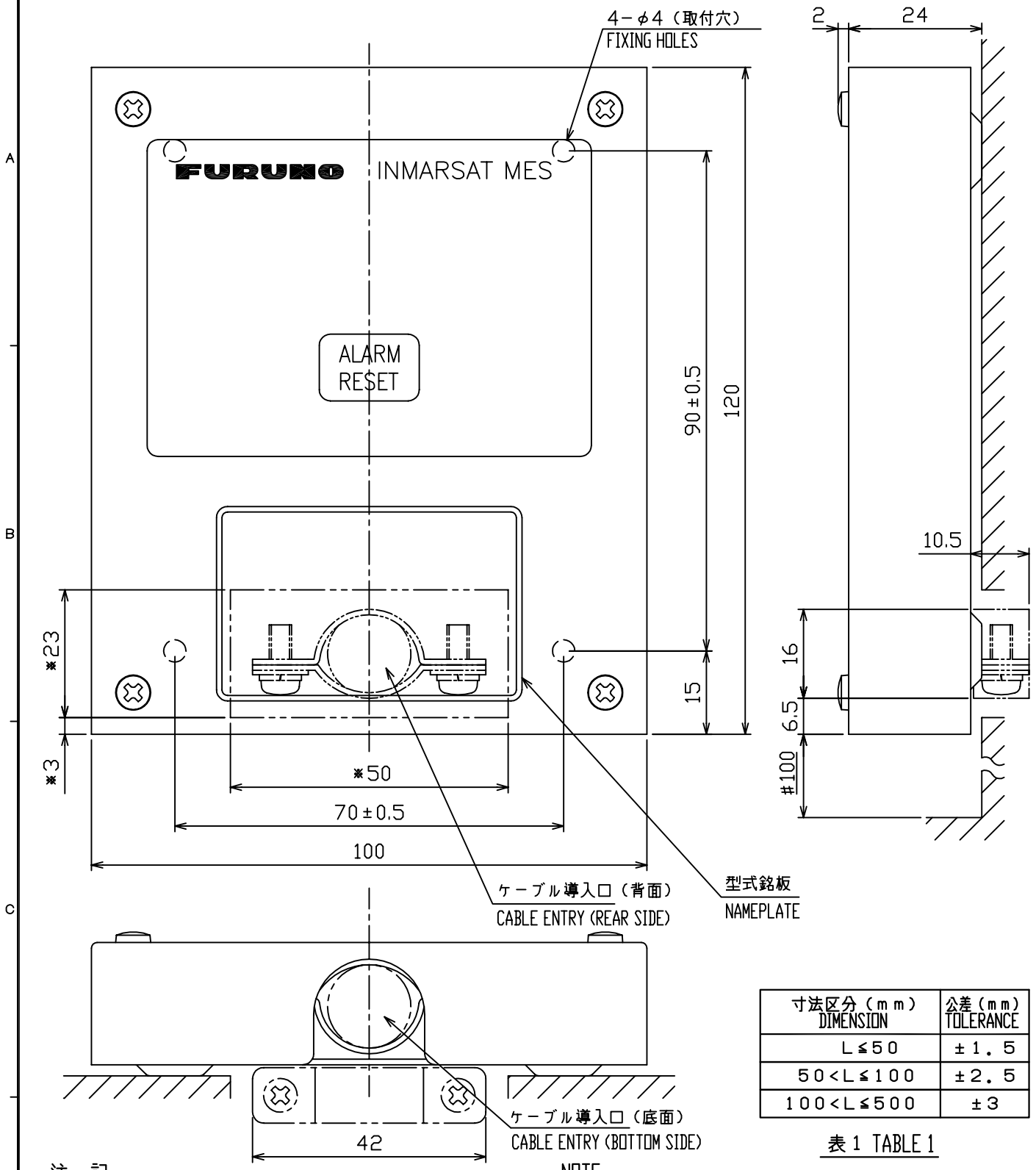
取付穴寸法図
CUTOUT DIMENSIONS



注　記　1）指定外の寸法公差は表1による。
　　2）取付用ネジは＋トラスタッピンネジ呼び径４×１６を使用のこと。

NOTE　1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
　　2. USE SELF-TAPPING SCREWS 4X16 FOR FIXING THE UNIT.

DRAWN Apr. 21 '04 E.MIYOSHI		TITLE	IC-306
CHECKED TAKAHASHI. T		名称	アラームユニット（埋込装備）
APPROVED Y. Hatai	FELCOM 15		外寸図
SCALE 1/2 MASS 0.44 ±10% kg		NAME	ALARM UNIT (FLUSH MOUNT)
DWG.No. C5635-G09- B	16-018-5106-1		OUTLINE DRAWING



寸法区分（mm） DIMENSION	公差（mm） TOLERANCE
L≦50	±1．5
50<L≦100	±2．5
100<L≦500	±3

表 1 TABLE 1

注　記

1）＃印寸法は最小サービス空間寸法とする。
2）指定外の寸法公差は表１による。
3）取付には＋タッピンネジ３×１０を使用のこと。
4）※印寸法は、背面からのケーブル導入穴寸法。

NOTE

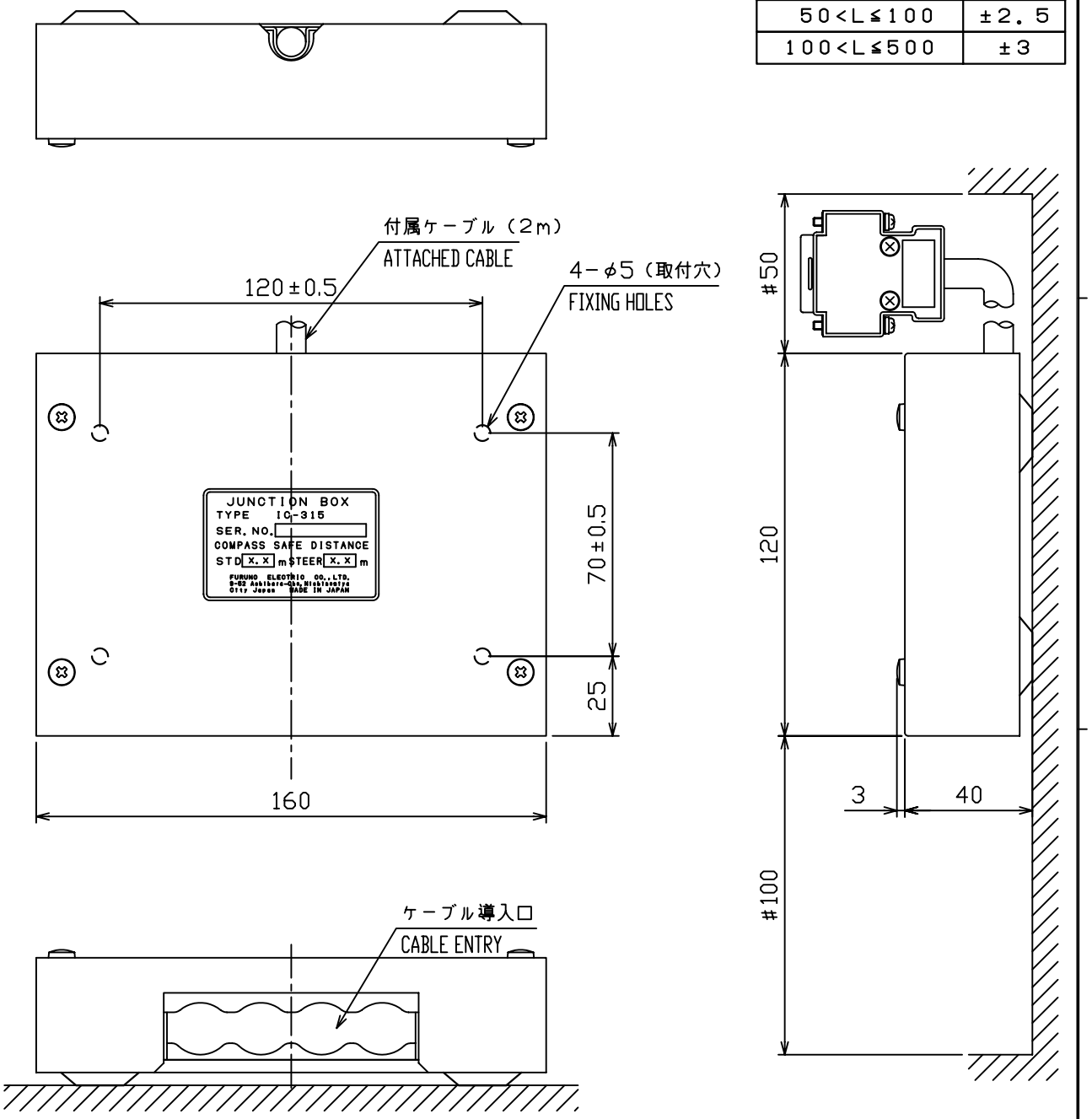
1. #: RECOMMENDED SERVICE CLEARANCE.
2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.
3. USE TAPPING SCREWS 3x10 FOR FIXING THE UNIT.
4. ※: CUTOUT DIMENSIONS FOR REAR SIDE CABLE ENTRY.

DRAWN Dec. 19 '02 T.YAMASAKI			TITLE IC-306
CHECKED Dec. 19 '02 Y.KIMURA			名称 アラームユニット
APPROVED Dec. 20, '02 Y. Kimura		FELCOM 15/16	外寸図
SCALE 1/1	MASS 0.33 ±10% kg		NAME ALARM UNIT
DWG No. C5635-G05- B		16-018-500G-1	OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

表 1 TABLE 1

寸法区分（mm） DIMENSIONS	公差（mm） TOLERANCE
L≦50	±1.5
50<L≦100	±2.5
100<L≦500	±3



注 記 1） #印寸法は最小サービス空間寸法とする。
2） 指定外の寸法公差は表1による。
3） 取付用ネジは＋タッピンネジ呼び径4×16を使用のこと。

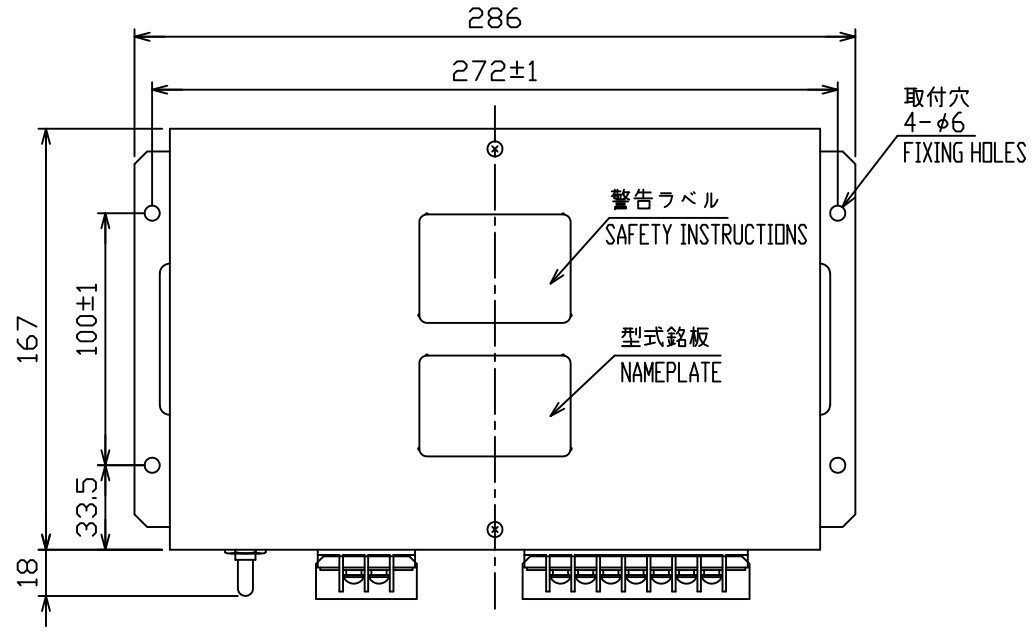
NOTE 1. #: MINIMUM SERVICE CLEARANCE.
2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
3. USE SELF-TAPPING SCREWS 4x16 FOR FIXING THE UNIT.

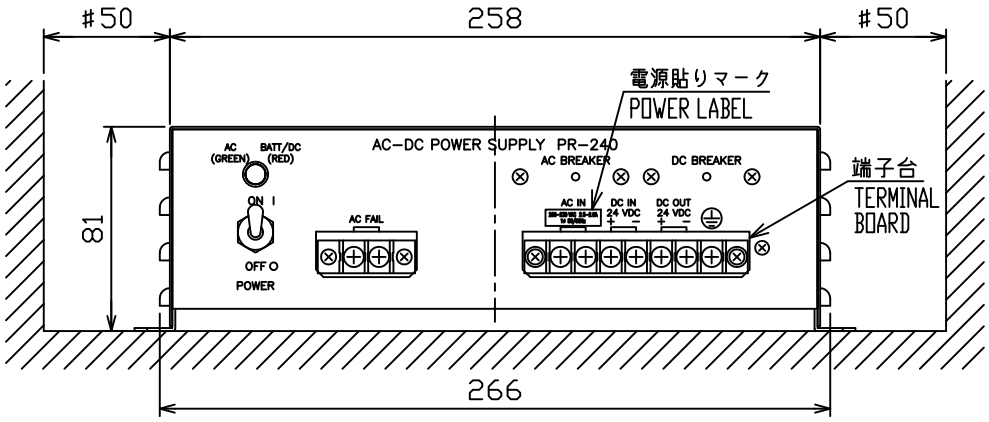
DRAWN Mar. 1 '05 T.YAMASAKI			TITLE IC-315
CHECKED Mar. 1 '05 T.MATSUGUCHI			名称 接続箱
APPROVED Mar.03'05 T.Matsuguchi	FELCOM 15/16		外寸図
SCALE 1/2	MASS 0.96 ±10% kg	質量はケーブルを含む。 MASS W/ CABLE.	NAME JUNCTION BOX
DWG No. C5635-G06- D	16-018-6006-2		OUTLINE DRAWING

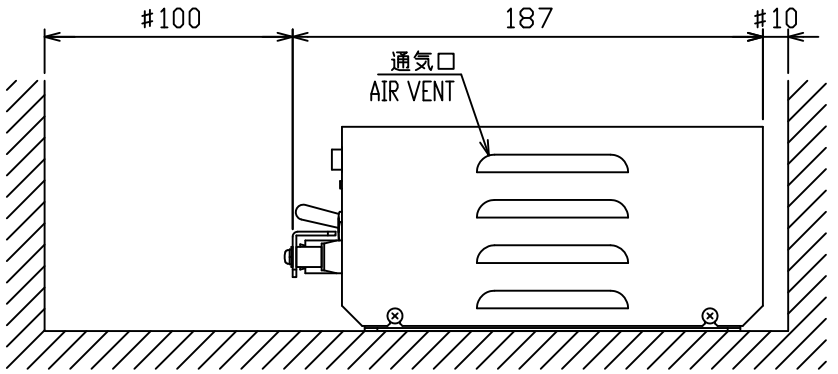
FURUNO

表１ TABLE 1

寸法区分（ｍｍ） DIMENSION	公差（ｍｍ） TOLERANCE
L≦５０	±１．５
５０<L≦１００	±２．５
１００<L≦５００	±３







注　記　１）指定なき寸法公差は表１による。
２）#印寸法は最小サービス空間寸法とする。
３）取付用ネジは＋トラスタッピンネジ 呼び径４ｘ１６を使用のこと。

NOTE 1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
2. #: MINIMUM SERVICE CLEARANCE.
3. USE TAPPING SCREWS Ø4x16 FOR FIXING THE UNIT.

DRAWN 11/Dec/08 T.YAMASAKI		TITLE PR-240
CHECKED 11/Dec/08 T.TAKENO		名称 AC／DC電源ユニット
APPROVED 5/Feb/09 R.Esumi		外寸図
SCALE 1/3 MASS 3.2 ±10% kg		NAME AC/DC POWER SUPPLY UNIT
DWG No. C5003-G03- H	REF. No. 24-003-500G-4	OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

FURUNO

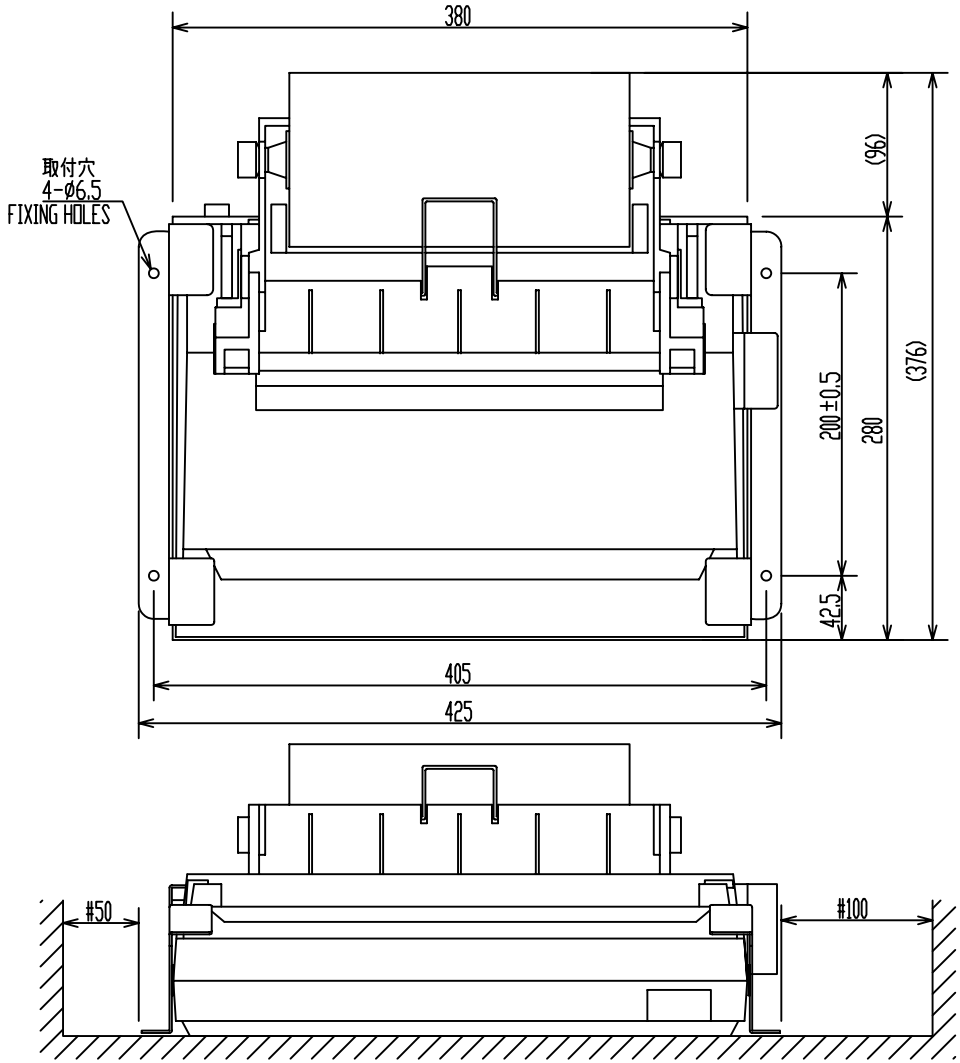
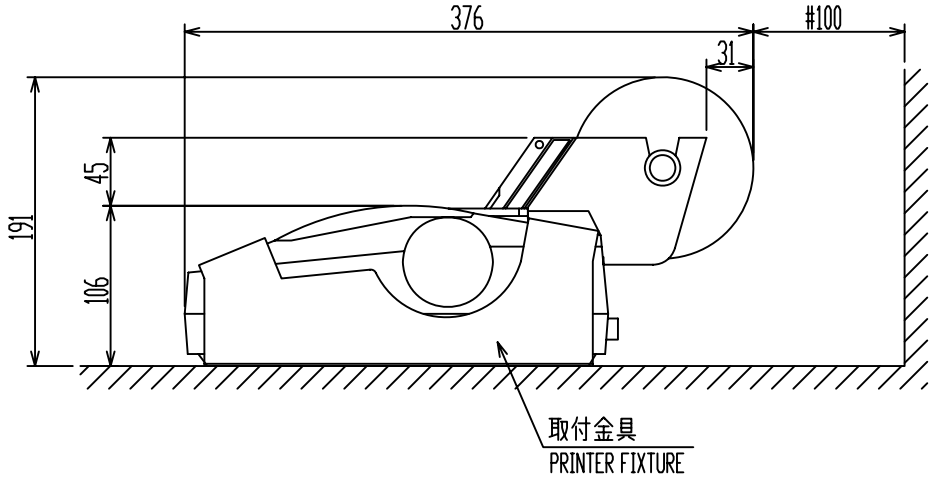


表 1 TABLE 1

寸法区分（mm） DIMENSIONS	公差（mm） TOLERANCE
0 < L ≦ 50	±1．5
50 < L ≦ 100	±2．5
100 < L ≦ 500	±3



注 記 1）＃印寸法は最小サービス空間寸法とする。
2）指定外の寸法公差は表１による。
3）取付用ネジはM６ボルトまたはコーチボルト呼び径６を使用のこと。

NOTE 1. #: MINIMUM SERVICE CLEARANCE.
2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
3. USE M6 BOLTS OR COACH SCREWS φ6 FOR FIXING THE UNIT.

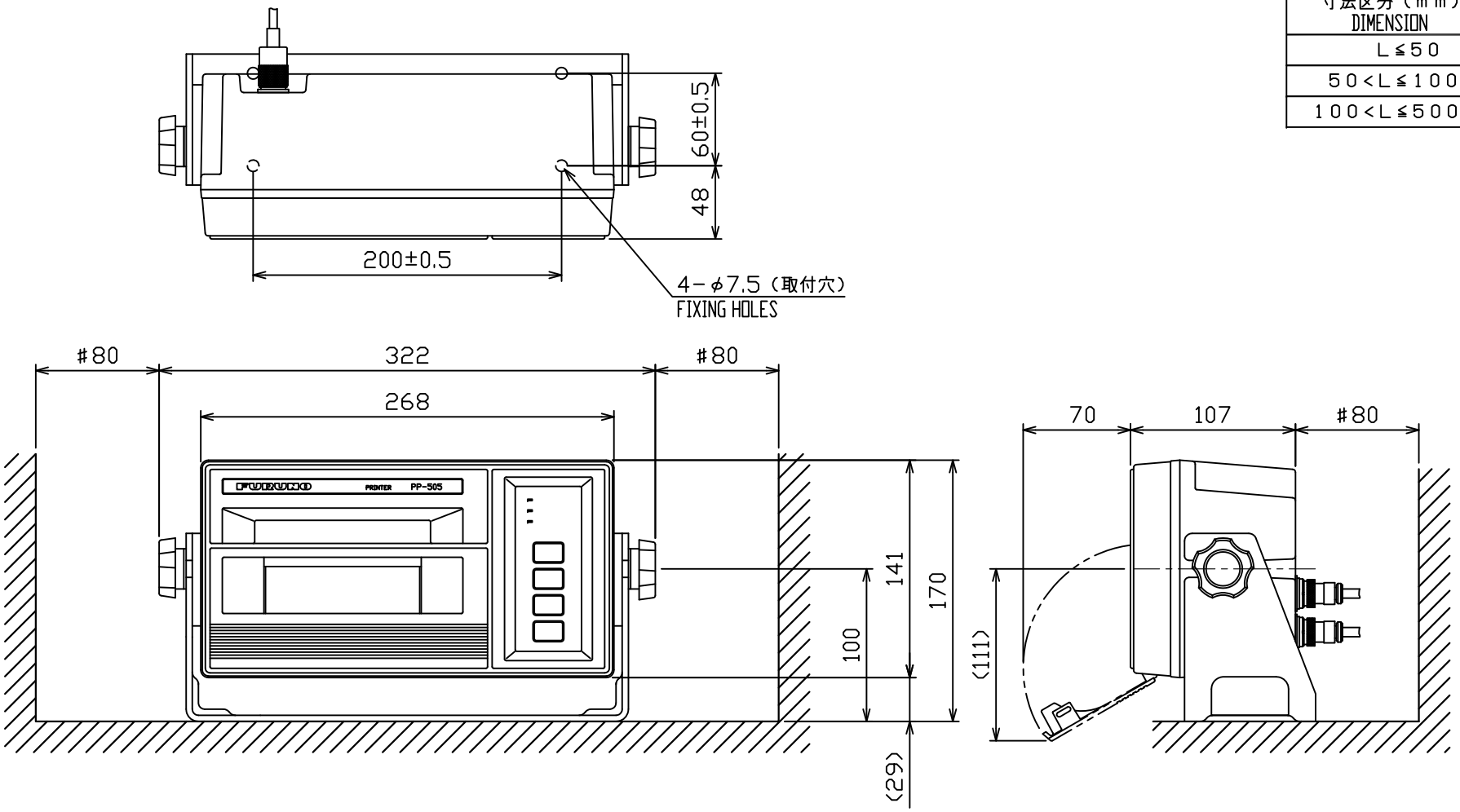
DRAWN Nov. 27, '06 E. MIYOSHI		TITLE	PP-510
CHECKED TAKAHASHI. T		名称	プリンタ
APPROVED Y. Hatai			外寸図
SCALE 1/5 MASS 3.8 ±10% kg		NAME	PRINTER
DWG.No. C5589-G08- K	REF.No. 16-007-660G- 2		OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

FURUNO

表 1 TABLE 1

寸法区分（mm） DIMENSION	公差（mm） TOLERANCE
L≦50	±1.5
50<L≦100	±2.5
100<L≦500	±3



注　記

1）指定外の寸法公差は表 1 による。

2）＃印寸法は最小サービス空間寸法とする。

NOTE

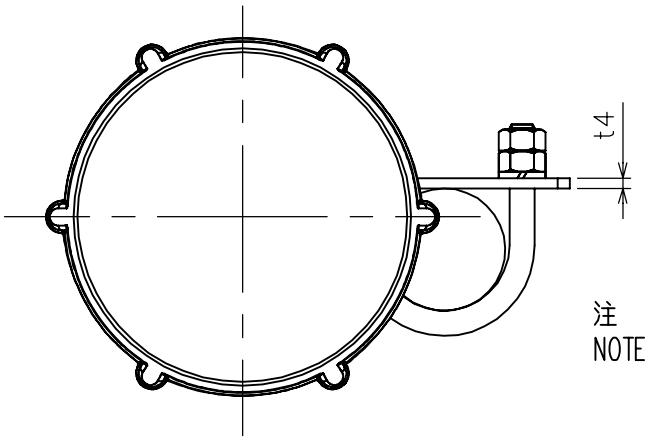
1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
2. #: MINIMUM SERVICE CLEARANCE.

DRAWN Oct. 12 '07 T.YAMASAKI		TITLE	PP-505/505FE/505FP
CHECKED Oct. 12 '07 T.TAKENO		名称	EGCプリンタ/プリンタ（卓上装備）
APPROVED Oct.15'07 R.Esumi			外寸図
SCALE 1/4 MASS 2.9 ±10% kg		NAME	EGC PRINTER/ PRINTER (TABLETOP MOUNT)
DWG.No. C5540-G03- D	16-010-005G-0		OUTLINE DRAWING

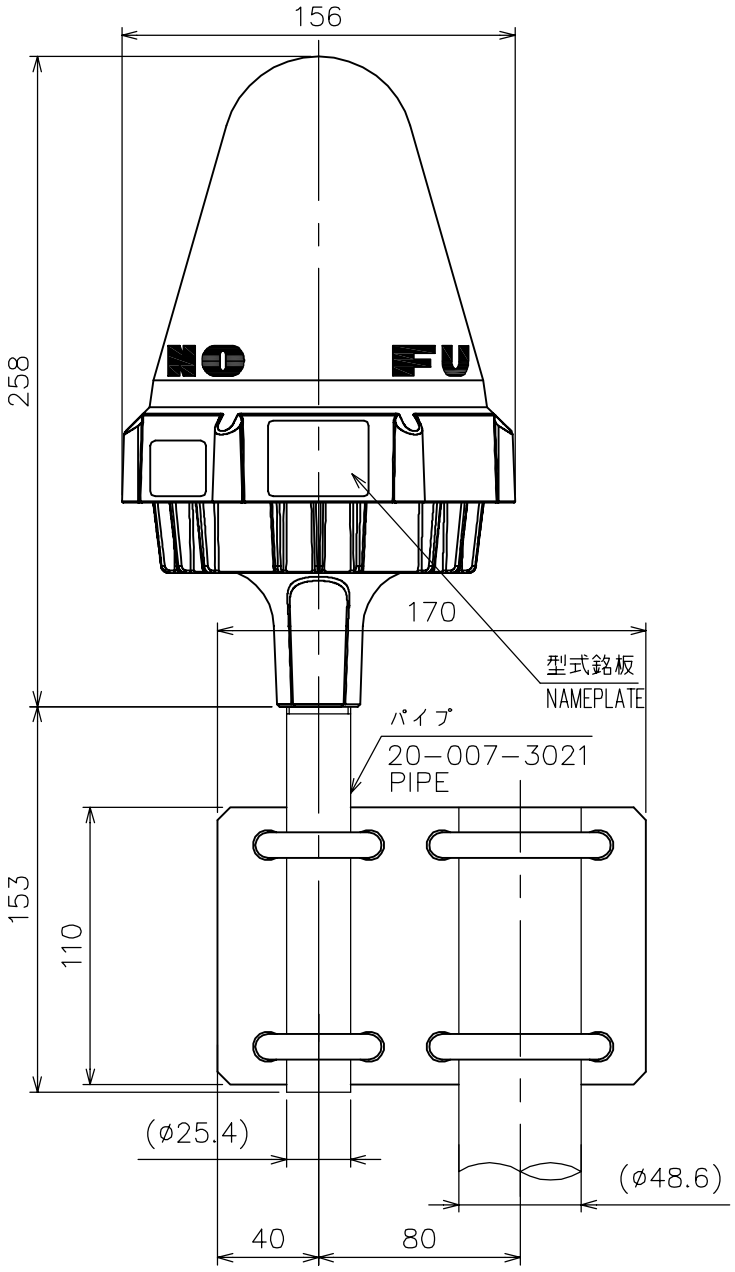
FURUNO ELECTRIC CO., LTD.

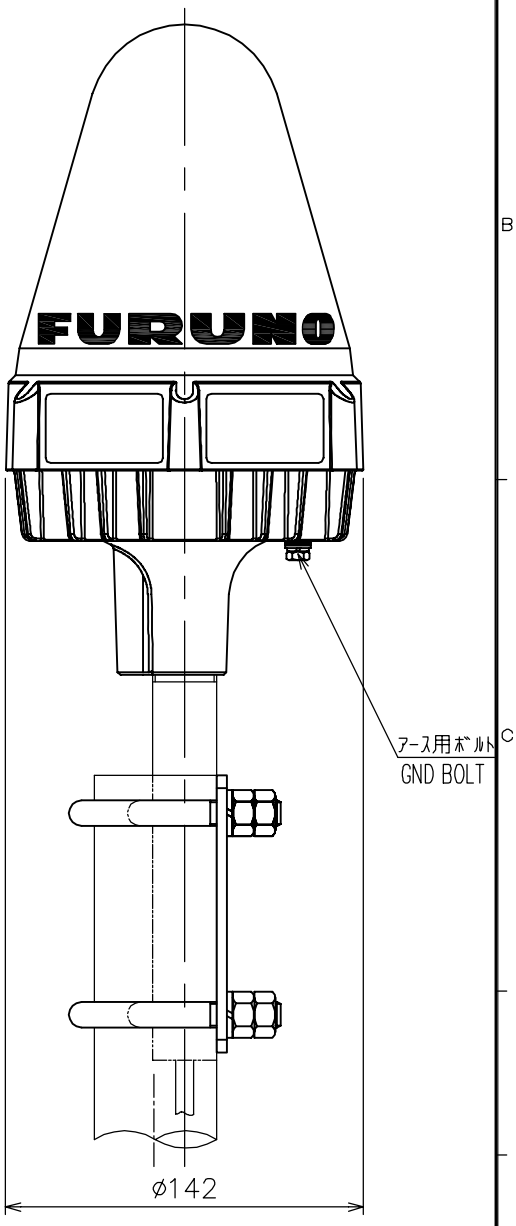
表 1 TABLE 1

寸法区分（ｍｍ） DIMENSIONS	公差（ｍｍ） TOLERANCE
L≦50	±1．5
50<L≦100	±2．5
100<L≦500	±3



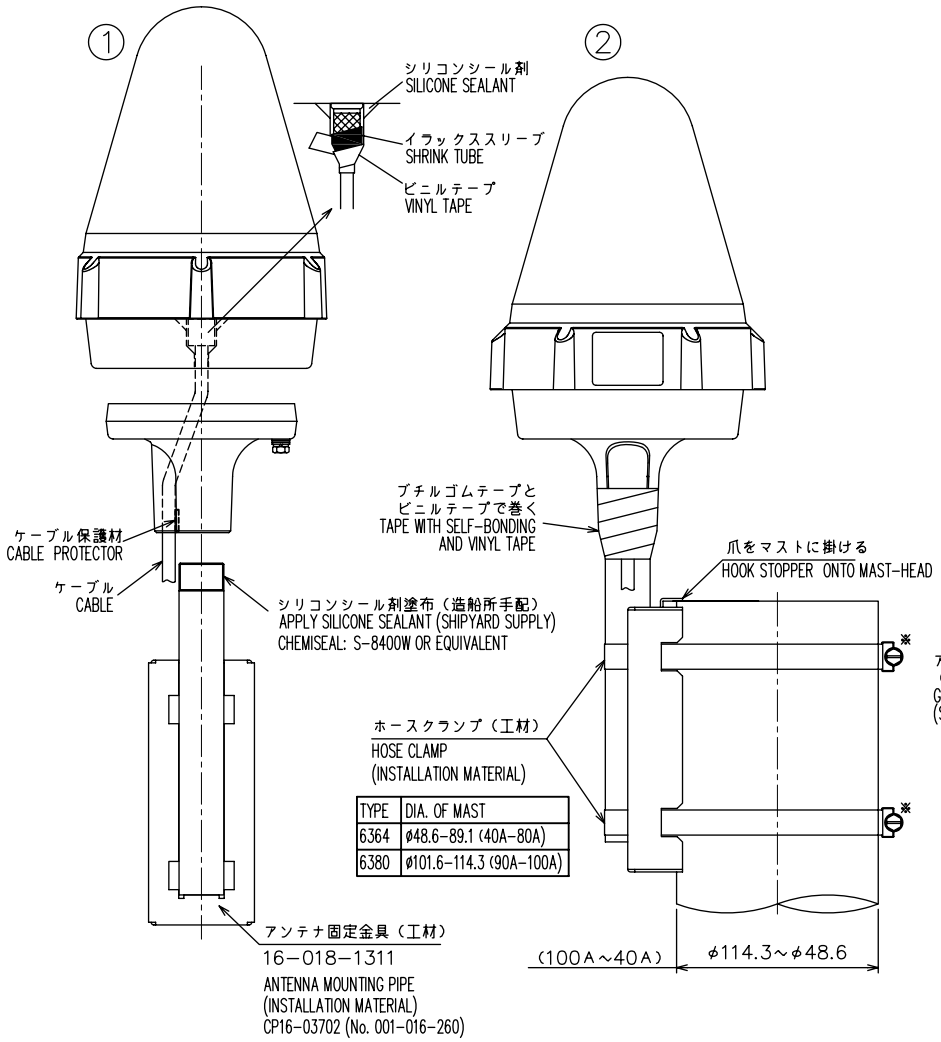
注　記　1）指定外の寸法公差は表 1 による。
NOTE　1.　TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.





DRAWN Mar. 13, '06 E.MIYOSHI			TITLE IC-115/116
CHECKED TAKAHASHI.T			名称 アンテナユニット
APPROVED Y. Hatai	FELCOM 15/16		外寸図
SCALE 1/3	MASS 2.2 ±10% kg		NAME ANTENNA UNIT
DWG No. C5635−G19− A	16−018−101G−1		OUTLINE DRAWING

FURUNO



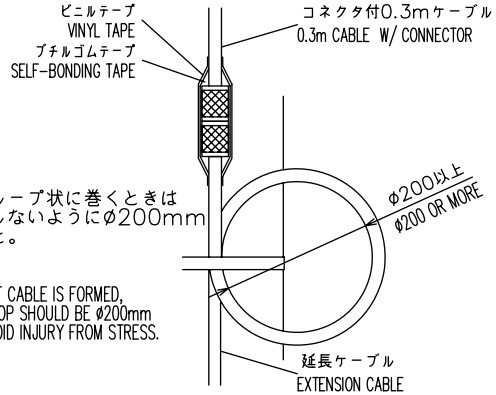
TYPE	DIA. OF MAST
6364	ø48.6-89.1 (40A-80A)
6380	ø101.6-114.3 (90A-100A)

手順

1）ケーブルをよけてアンテナ固定金具をアンテナユニットにねじ込む。
2）アンテナ固定具をホースクランプでマストに固定する。
対応マスト径：40A（φ48.6）～100A（φ114.3）
ホースクランプ（いずれか選択）
6364: 40A（φ48.6）～80A（φ89.1）
6380: 90A（φ101.6）～100A（φ114.3）
3）ケーブルをマストに固定し、アース線（工材）を布設する。
ケーブル、アース線はコンベックスなどで固定する。
4）※部分をシール剤で完全に覆う。

PROCEDURE

1. SCREW THE ANTENNA MOUNTING PIPE INTO THE ANTENNA BASE.
KEEP THE ANTENNA CABLE ASIDE TO AVOID INJURY.
2. FIX THE ANTENNA MOUNTING PIPE TO MAST BY HOSE CLAMP.
MAST DIAMETER: 40A (φ48.6) ~100A (φ114.3)
HOSE CLAMP (SELECT)
6364: 40A (φ48.6) ~80A (φ89.1)
6380: 90A (φ101.6) ~100A (φ114.3)
3. FIX THE ANTENNA CABLE AND GROUND WIRE.
SECURE THEM WITH CABLE TIE.
4. COVER SCREW HEADS MARKED '※' WITH SILICONE SEALANT.



ケーブルをループ状に巻くときは
芯線が断線しないようにø200mm
以上とること。

WHEN A LOOP OF CABLE IS FORMED,
DIAMETER OF LOOP SHOULD BE ø200mm
OR MORE TO AVOID INJURY FROM STRESS.

DRAWN Jul. 18 '07 T.YAMASAKI		TITLE	IC-115/116
CHECKED Jul. 18 '07 T.TAKENO		名称	アンテナユニット（ホースクランプ取付）
APPROVED Jul. 24' 07 R. Esumi	FELCOM 15/16		装備要領
SCALE	MASS ±10% kg	NAME	ANTENNA UNIT (HOSE CLAMP FIXING)
DWG No. C5635-Y01- C			INSTALLATION PROCEDURE

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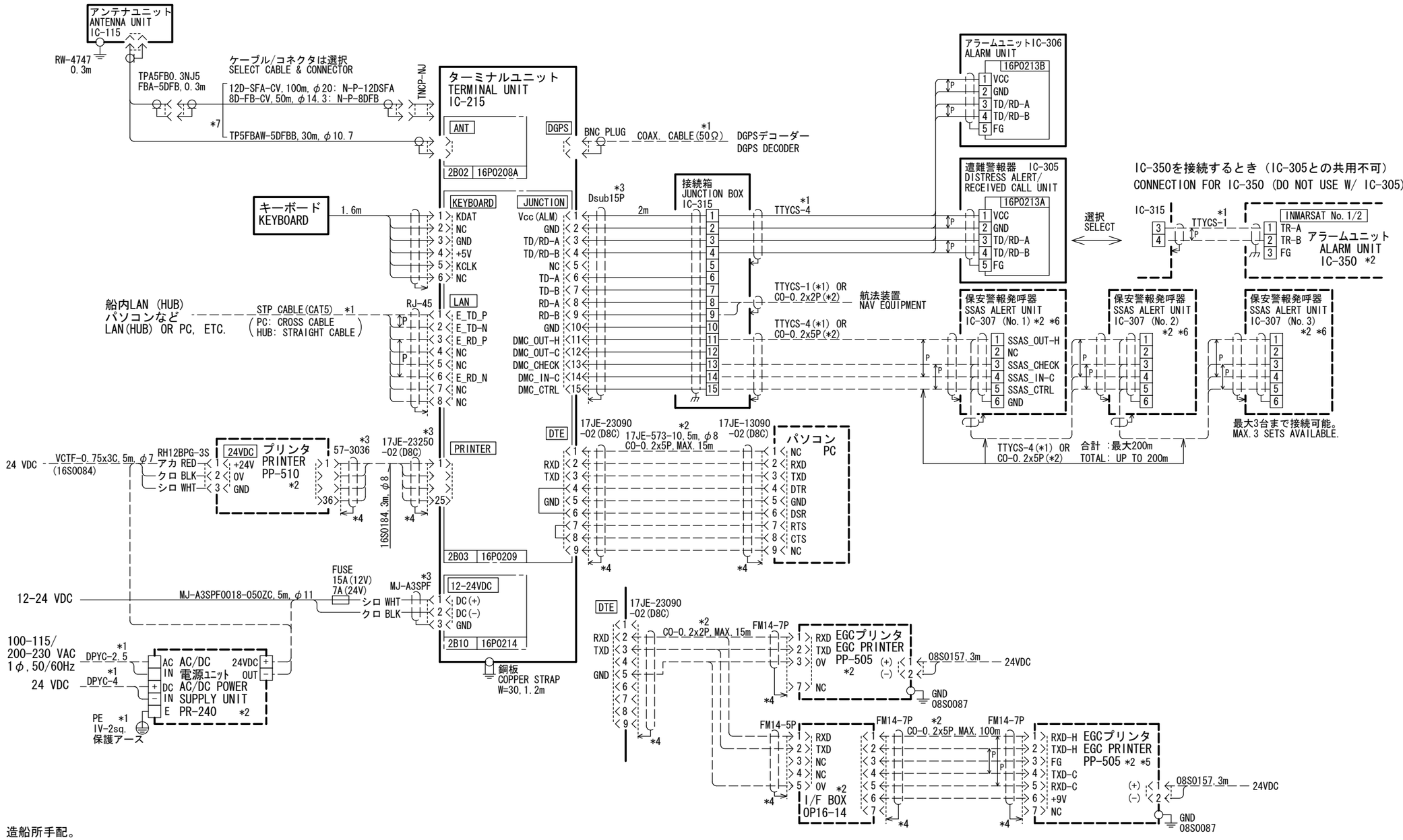

注記
＊１）造船所手配。
＊２）オプション。
＊３）工場にて取付済み。
＊４）コネクタクランプでアースに落とす。
＊５）TB基板（16P0116）が必要。
＊６）終端のIC-307はジャンパー設定を変更する。
＊７）アンテナケーブルは切断して使用しないこと。

NOTE
*1. SHIPYARD SUPPLY.
*2. OPTION.
*3. FITTED AT FACTORY.
*4. GROUND THRU CONNECTOR CLAMP.
*5. TB BOARD (16P0116) REQUIRED.
*6. CHANGE SETTING OF JUMPER IN IC-307 TO TERMINATE.
*7. DO NOT SHORTEN ANTENNA CABLE.

CO-0.2x2P: CO-SPEVV-SB-C 0.2x2P,φ10.5
CO-0.2x5P: CO-SPEVV-SB-C 0.2x5P,φ13.5

DRAWN 25/Jun/09 T.YAMASAKI		TITLE	FELCOM 15
CHECKED 25/Jun/09 T.TAKENO		名称	インマルサットC船舶地球局
APPROVED 8/Jul/09 R.Esumi			相互結線図
SCALE	MASS kg	NAME	INMARSAT-C MES
DWG No. C5635-C01- R			INTERCONNECTION DIAGRAM

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